Mad W
Winnipeg, Health Dept

CITY OF WINNIPEG

REPORT

of the

CITY HEALTH DEPARTMENT

APR 20 1934
UNIVERSITY OF TORONTO

FOR THE YEAR ENDING
31st DECEMBER
1922

CITY OF WINNIPEG

REPORT

of the

City Health Department

FOR THE YEAR ENDING

31st DECEMBER

1922

COMMITTEE ON HEALTH
1922

Alderman W. B. Simpson, Chairman.

Alderman J. G. Sullivan.

Alderman R. J. Shore.

Alderman H. Gray.

Alderman J. A. McKerchar.

Alderman J. O'Hare.

Alderman Thos. Flye.

Alderman J. Blumberg.

Alderman H. Jones.

His Worship Mayor E. Parnell (Deceased)

His Worship Mayor F. O. Fowler
(ex-officio members).

STAFF

(December, 1922)

Medical Health Officer

A. J. Douglas, M.D.

Laboratory

Bacteriologist—M. Finkelstein, M.D.
Assistant—Miss M. Wilson.
Laboratory Boy—H. Robinson.

District Physicians

W. Turnbull, M.D.
O. C. Dorman, M.D.
E. H. Alexander, M.D.

Dental Clinic

Dr. A. S. MacKenzie, Dentist

Sanitary Inspections Division

Chief Inspector—E. W. J. Hague.
Smoke and Supervising Inspector—P. Pickering.
Inspector—C. W. Chisholm.
" H. Olson.
" B. C. Brough.
" J. McHardy.
" A. Barclay.
" F. C. Austin.
Inspectors' Clerk—W. Hanby.
Clerk—G. Duffield.

Tenement and Supervising Inspector—A. Officer.
Supervising Inspector—D. Little.
Inspector—S. J. Scheving.
" O. S. Oliver.
" J. Foggie.
" R. McQuillan.
" A. Aitken.
" T. J. Booth.
" J. Shepherd.
Interpreter-Inspector—J. Miller.

Chief Inspector J. H. Pearson—Retired September 30th.

Communicable Diseases Division

Chief Inspector—W. J. T. Watt.
Inspector—G. Hanby.
" A. Paull.
" C. H. Hargrave.
" H. H. Marshall.
" H. G. Triggs.

Tuberculosis Nurse—Miss K. Vanetta.
" " Miss B. M. Gray.
" " Miss A. G. Luke.
" " Miss H. Smyth.
Record Clerk—Miss W. G. Aldham.
Clerk—G. Moore.

Division of Records and Statistics

Secretary—A. G. Lawrence.
Stenographer-Clerk—Miss M. Ryan.
Stenographer-Clerk—Miss L. Gransden.
Stenographer—Miss D. Steuart.

Bureau of Child Hygiene

Attending Physician—R. F. Rorke, M.D.
" " F. G. Schwalm, M.D.
Manager—A. G. Lawrence.
Nurse—Miss M. M. Wonnacott.
" Miss A. J. Attrill.
" Miss L. McCallum (on leave).
" Miss L. Spratt.
" Miss C. Maddin.
" Miss A. Moore.
" Miss C. Munro.
" Miss L. A. Schwalm.
" Miss E. A. Bennett.

Nurse—Miss M. Harper.
" Miss M. W. Macrae.
" Miss M. Wilkins.
" Miss P. K. Brandson.
" Miss B. R. Hazelwood.
" Miss K. C. Montgomery(temp.)
Dietitian—Miss A. Graham.
Asst. Dispenser—Mrs. A. Johnson.
Assistant—Miss S. McCallum.
" Mrs. J. McDonald.
" Mrs. H. Twist.
Caretaker—P. Broadley.

Dairy Division

Chief Inspector—E. C. Brown.
Inspector—F. Hudson.
Creameries Inspector—F. Lutley.
Veterinary Inspector—E.S. Bowman, V.S.

Food Division

Chief Inspector—A. Rigby.
Inspector—A. W. Foote.
" G. R. Mines.

REPORT OF THE MEDICAL HEALTH OFFICER

City Health Department,
Winnipeg, Man., March 21st, 1923.

Chairman and Members of the
Committee on Health.

Gentlemen:

I have the honor to submit for your consideration the report of the Health Department for the year 1922. This report includes the reports of the sub-heads of the Department, together with a statement of the cost of the year's work.

Statistics

The number of deaths, excluding stillbirths, was 1,801. Assuming the population to be 199,129 (City Assessor's figures), this gives a gross death rate of 9.04, one of the lowest rates we have on record.

The number of deaths in children under one year of age was 500, giving a mortality rate of 88.8 per 1,000 living births. This figure is ten points higher than the rate of 1921, which was our lowest. An analysis of these figures will be found in the report of the Manager of the Bureau of Child Hygiene.

The number of births, excluding stillbirths, was 5,629, giving a birth rate of 28.27 per 1,000 of population. In 1921 the rate was 30.61.

Appropriations and Expenditures

The total appropriations assigned to the Department amounted to $146,592.70, of which $600.00 covered fixed charges on debenture debt.

Of this sum $139,752.70 was expended, leaving a credit balance of $6,840.00. This gives a gross expenditure per capita of 70.2 cents, or, deducting revenue credited to the City's general revenue account, a net per capita expenditure of 68.4 cents.

Further details follow:

Financial Statement for the Year 1922

Departmental Expenditures

C-1. Administration and Statistics (Controllable)—

(a) Personal Services	$12,251.57	
(b) Outside Services	189.87	
(c) Material, Supplies and Repairs	520.30	
(d) Equipment, Additions and Replacements	121.98	
		$13,083.72

C-2. Bacteriological Laboratory (Controllable)—

(a) Personal Services	$ 5,968.87	
(b) Outside Services	42.67	
(c) Material, Supplies and Repairs	741.43	
(d) Equipment, Additions and Replacements	14.59	
(e) Fuel, Water, Light and Power	151.26	
		$6,918.82

C-3. Treatment and Prevention of Communicable Diseases—

C-3-1. Acute Communicable Diseases (Controllable)—

(a) Personal Services	$12,443.84	
(b) Outside Services	158.79	
(c) Material, Supplies and Repairs	575.96	
(d) Equipment, Additions and Replacements	248.55	
		$13,427.14

C-3-2. Tuberculosis (Controllable)—

(a) Personal Services	$5,363.29	
(c) Material, Supplies and Repairs	2,033.83	
(d) Equipment, Additions and Replacements	253.15	
		$7,650.27

C-3-3. Smallpox Prevention (Controllable)—

(b) Outside Services	$1,053.16	
(c) Material, Supplies and Repairs	242.63	
		$1,295.79

C-3-4. Automobile Services (Controllable)—

(b) Outside Services	$269.89	
(c) Material, Supplies and Repairs	901.55	
		$1,171.44
Total Controllable		$23,544.64

C-3-5. Fixed Charges on Debenture Debt (Uncontrollable)—

(i) Interest	600.00
Total Treatment and Prevention of Communicable Diseases	$24,144.64

C-4. Sanitary Inspection (Controllable)—

(a) Personal Services	$37,803.00	
(b) Outside Services	36.50	
(c) Material, Supplies and Repairs	528.57	
(d) Equipment, Additions and Replacements	668.31	
		$39,036.38

C-5. Food and Dairy Inspection (Controllable)—

C-5-1. Dairy Inspection—		
(a) Personal Services	$8,502.00	
(b) Outside Services	1,265.65	
(c) Material, Supplies and Repairs	462.07	
(d) Equipment, Additions and Replacements	161.93	
		$10,391.65
C-5-2. Food Inspection—		
(a) Personal Services	$6,582.00	
(b) Outside Services	36.00	
(c) Material, Supplies and Repairs	76.10	
(d) Equipment, Additions and Replacements	119.95	
		$6,814.05
Total Food and Dairy Inspection		$17,205.70

C-6. Child Welfare (Controllable)—

C-6-1. Babies' Milk Depot—		
(a) Personal Services	$5,177.94	
(b) Outside Services	3,876.49	
(c) Material, Supplies and Repairs	4,100.78	
(d) Equipment, Additions and Replacements	.....	
(e) Fuel, Water, Light and Power	1,260.96	
		$14,416.17
C-6-2. Visiting Nurses—		
(a) Personal Services	$19,744.79	
(c) Material, Supplies and Repairs	468.40	
(d) Equipment, Additions and Replacements	770.64	
		$20,983.83
Total Child Welfare		$35,400.00

C-7. Medical Relief (Controllable)—

C-7-1. District Physicians—		
(b) Outside Services	$1,581.00	
(c) Material, Supplies and Repairs	438.55	
		$2,019.55
C-7-2. Dental Clinic—		
(b) Outside Services	$1,940.00	
(c) Material, Supplies and Repairs	3.89	
		$1,943.89
Total Medical Relief		$3,963.44
Gross Departmental Expenditure		$139,752.70

Revenue

(Credited to the City's Revenue Account)

Police Court Fines and Costs	$ 654.00	
Fees for Fumigation	103.50	
Fees for Laboratory Work	321.00	
Sale of Infants' Feedings at Milk Depot	2,500.25	
		$3,578.75
Net Departmental Expenditure		$136,173.95

Cost per Capita

(Population, 199,129)

Gross Departmental Expenditure per Capita	70.2
Net Departmental Expenditure per Capita	68.4

Typhoid Fever

Cases reported were 40 in number, with 3 deaths, giving a rate of 1.50 per 100,000 of population. In 1921 the rate was 5.7. Mortality rate per 100 cases was 7.5; in 1921, 20.4.

All the deaths were from cases in which the infection was contracted outside the city. Of the forty cases reported twenty-one were non-residents; the remainder were unconnected with any demonstrable source of infection. Three secondary cases occurred in the home in which a patient was being nursed.

This is the third year in succession that there has been no death from typhoid fever contracted within the City. This is an interesting and instructive fact when it is borne in mind that typhoid fever formerly presented one of the most formidable of our health problems. So much has been said about this in the reports of other years that no effort will be made here to go over old ground. It is enough to say that vigilant care in every department of typhoid prevention should not be for a moment relaxed.

Smallpox

Seventy-five cases were notified with no deaths, against 71 with no deaths in 1921.

The smallpox history of 1922 presents some interesting features and brings abundantly into prominence the effect of vaccination in controlling this disease.

During the month of April two cases in unvaccinated individuals occurred in a rooming house, the source of infection being a young woman recently come to the City who was suffering from a mild form of the disease. From May to September there were five cases; these were unrelated to each other and, with the exception of one man, had all contracted infection outside the City. All these persons were unvaccinated.

Just as it was beginning to look as if the year was going to be a light one for smallpox incidence, things began to happen. During the last week of October six cases were notified. Forty-four cases occurred in November and seventeen in December.

We found that owing to non-recognition that smallpox had existed in one or two districts for several weeks and had got away to a fairly good start. We were able through working backwards from known cases to bring to light a number of convalescents and persons who had recovered. The disease got a foothold among some unvaccinated children attending a couple of large schools and the first two decades of life furnished the majority of the patients. House to house inspection of the affected districts and an intensive campaign of vaccination soon cleaned up the situation and the end of the year found the outbreak about over. The following striking instances of the protective influence of vaccination might be mentioned.

A mother, daughter and young man visited a home in which was a child in the early stages of smallpox. The case at the time of their visit had not been thought to be anything communicable. After the child had been removed to hospital a list of persons visiting the home was obtained. These persons were vaccinated. No mention was made of the visit of these three individuals, and it transpired that pressure had been brought to bear on the (both previously unvaccinated) did nothing, and three weeks later the two

people of the house to say nothing about the visit. The mother took the precaution of getting vaccinated, but the young lady and the young man were removed to the smallpox hospital on the same day. In the home of the young man a party was held the day his rash appeared; up to this time he had said nothing and had no physician nor given any hint of even having been exposed. This party was a tea which was attended by a number of ladies. When the young man's case came to light those attending the party, who required vaccination, were urged to have this done. All but one lady did as requested, and this lady some two weeks later developed smallpox.

Getting this outbreak under control involved considerable work in hunting up contacts, and a great deal of vaccinating was done both by the department and local physicians.

The following table shows ages of those affected:—

1 to 10 years	26 cases
11 to 20 years	19 cases
21 to 30 years	13 cases
31 to 40 years	4 cases
41 to 50 years	9 cases
51 and over	4 cases

Of these seventy-five cases, thirty-seven were under sixteen years of age and unvaccinated. Twenty-seven were unvaccinated adults; eleven had been previously vaccinated. The ages of these ranged from twenty-two years to sixty-one years. There was no instance of a person attacked being successfully vaccinated within a period of ten years.

The type of smallpox which prevailed was uniformly mild; indeed so mild in some instances that the rash was limited to less than half a dozen lesions. This led to improper diagnosis in certain cases and was the principal cause of the disease getting such a foothold during the late autumn.

A word of warning might well be spoken here. On this continent, during the past year, smallpox has appeared of a type which leaves no doubt that it is still possessed of its old virulence and is as capable a killer as it ever was in the course of its long history. It is therefore too much to expect that it will always continue mild in this district. Given the severe type and an unvaccinated population, many fatalities will certainly take place. There is a tendency during long periods of immunity to forget the lessons of the past and neglect simple precautions. Complete protection against smallpox can be secured by vaccination and revaccination, and this fact cannot be too strongly driven home on our people in season and out.

During 1922 all our smallpox patients were cared for at the King George Hospital, an arrangement we found highly satisfactory in every way.

Chickenpox

Eight hundred and ninety-three cases of chickenpox were notified, against 813 cases in 1921. There were no deaths. This constitutes a record. An outbreak of this disease prevailed coincidently with smallpox, and many of the cases of chickenpox were brought to light while tracing up the other disease. It might be mentioned that all of these cases were seen and identified; we feel sure that no smallpox is included in this total.

Whooping Cough

The total number of cases was 476; deaths 12; rate per 100,000 population, 6.0; rate per 100 cases, 2.5. In 1921 there were 124 cases and 7 deaths; rate per 100,000 population, 3.5.

Nineteen hundred and twenty-one was our low record year for whooping cough, and 1922 falls well below our average. There is a distinct improvement in case mortality during the past few years, possibly due to fuller

appreciation on the part of the public as to the serious nature of this disease, and consequently better care of the patient. The school nurses gave us a great deal of assistance by notifying cases unattended by physicians.

Measles

Seven hundred and sixty-three cases were reported with three deaths, against 157 cases with no deaths in 1921.

During the months of May and June, measles prevailed to an unusual extent for this period of the year; this disease is almost constantly a cold weather complaint in this country, when people are indoors and the opportunity for personal contact increased. The outbreak subsided abruptly after the schools were closed. October saw a sharp increase, which was further augmented in November and December. I have no doubt that the early months of 1923 will furnish a large number of cases, as this will be the third year since an extensive outbreak has occurred.

One satisfactory feature of the measles situation (in this city at least) is the very low mortality which has accompanied it. More respect for its dangerous possibilities is likely the reason.

Scarlet Fever

There were 884 cases and 11 deaths; in 1921, 1,171 cases and 28 deaths. Rates per 100,000 population: 1922, 5.52; 1921, 14.2.

Scarlet fever for the year presents a substantial reduction in cases and the prevailing type was unusually mild.

There were two rather interesting features connected with scarlet fever. One was a small group of ten cases in Elmwood scattered over the route of a milkman. There was not much doubt that a milk infection was the cause of the outbreak, but it was found impossible, after a most careful search, to ascertain how this occurred. There was nothing remotely suggesting scarlet fever in any person handling the milk, but the occurrence of these cases simultaneously, unconnected in any other way, was certainly more than a coincidence, and we are forced to conclude that an unrecognizable carrier was responsible. There was another milk borne outbreak of larger dimensions in which it was possible to get at the root of the trouble. In this twenty-nine cases occurred over a period of four days during the latter part of October. All the patients had a common milk supply and were scattered widely over a large area in Fort Rouge. On visiting the dairy a child was found with signs of desquamation on the hands. This child had a history of a mild attack of illness, accompanied by sore throat and slight rash, some two weeks previously. At this time a doctor was called, who gave an indefinite diagnosis and told the parents to call him again, which they did not do. The department was not notified of this case of illness, which should have been done. At the time of our visit a fourteen year old girl, who helped to milk, was found who had been indisposed with a sore throat; no rash or desquamation discoverable, but the throat was still reddened and infected, and the papillae of the tongue were decidedly enlarged. There was no doubt in our minds that the fourteen year old girl was the source of the infection.

The type of the disease in both these outbreaks was mild; no deaths resulted. The milk in both instances was used raw by the consumer.

It is interesting to note that in the second group single cases developed in eighteen homes; in four, two persons were affected. No secondary infections took place.

Adequate precautions were taken at both dairies as soon as their responsibility was evident, and no further trouble has taken place from them since. In the second instance we feel that we could have headed the outbreak off

if we had been notified of the illness at the dairy. Dairymen are required, under the by-law, to notify the department of illness of any kind at their establishments, and by doing this early have saved themselves and their customers trouble on many occasions in the past.

Diphtheria

Thirteen hundred and ninety-five cases were recorded during the year; deaths totalled 45. In 1921 there were 1,084 cases and 48 deaths. Rates per 100,000 population: 1922, 22.6; 1921, 24.3. Rates per 100 cases, 3.2 and 4.4 respectively. Carriers: 1922, 437; 1921, 247.

This has been a bad year for diphtheria. It gave us the largest number of cases we have on record for any one year. To partly offset this the type was unusually mild, and this very fact made control more difficult.

The diphtheria problem in Winnipeg is far from a satisfactory solution as yet, and, in spite of all our efforts, every autumn and winter produces an unnecessarily large number of cases. Mild and missed cases and carriers are responsible for many of these, but so also is indifference on the part of some people to the importance of determining the nature of sore throats in children and securing early treatment for this condition. It is truly remarkable how long many persons continue up and about while suffering from a well-marked and easily recognizable attack of diphtheria.

The medical and nursing service in the public schools gave the greatest assistance in discovering many of these and locating carriers. The number of the latter found was unusually large, and many of them showed no clinical symptoms and gave no history of illness or exposure to infection.

Secondary cases numbered 131; return cases totalled 11. This is a good showing out of 1,395 cases. Patients from outside were 135, and 90 cases occurred in institutions. No outbreak traceable to milk or food occurred.

The employment of toxin-antitoxin in immunizing susceptibles would seem to offer hope of relief, and the work that has been done along this line, in certain local institutions for children, has given highly satisfactory results. We expect to carry on this work during the coming year to a much greater extent, and hope the result of our efforts will show in next year's figures. The department, as formerly, will supply material for the Schick test and toxin-antitoxin to physicians and administer these free to persons applying for the treatment.

During the year antitoxin was furnished the department by the Provincial Board of Health. The amount distributed was 7,065,000 units.

Tuberculosis

The number of cases of tuberculosis of the lungs notified was 221, deaths 105; against 200 cases and 100 deaths in 1921. Rates per 100,000 population: 1922, 52.7; 1921, 50.8.

Tuberculosis of all forms: deaths 127, against 152 in 1921; rates 63.7 and 77.1 respectively.

Among the deaths are included 14 non-residents.

The usual agencies for tuberculosis control were at work throughout the year. These include the tuberculosis clinic at the Winnipeg General Hospital, the department's visiting nurses, the Anti-Tuberculosis Society, the Ninette Sanatorium, and the King Edward Memorial Hospital.

There was a slight falling off in attendance at the clinic, which may or may not indicate decreasing prevalence. Another clinic in connection with this work will shortly be opened at the Children's Hospital, at which a nurse from this department will assist.

A very important step in tuberculosis prevention was taken during the past year, when the campaign to rid our dairy herds of tuberculosis was started. Full particulars of this large undertaking will be found in the report of the Chief Dairy Inspector and in another part of this report.

Influenza

Eighty-seven cases were notified and 42 deaths. During 1921 there were 21 cases and 15 deaths.

These figures do not all present a true picture of the influenza situation for the year. The number of cases was greatly in excess of the notification; indeed, during the early months of the year influenza was quite prevalent. Only a small proportion of the more severe cases were reported, and a number of these only after the death of the patient. From the number of deaths which occurred it can be seen that this disease is still very much to be reckoned with, and people, during periods of prevalence, should take all precautions to avoid it.

The ages of the decedents are worthy of note:—

Under 1 year	9
1 to 10 years	6
11 to 20 years	1
21 to 30 years	5
31 to 40 years	6
41 to 50 years	5
51 to 60 years	4
61 to 70 years	3
71 to 80 years	3
Total	42

Venereal Diseases

The venereal disease clinic maintained by the Provincial Board of Health carried on throughout the year.

Full particulars of this important work will be found in the report kindly furnished by the Board which follows:—

Report of Venereal Disease Clinics in the Province of Manitoba for the Year Ending December 31, 1922

GONORRHOEA—Cases tabulated, 651:

SEX: Male	528	Children (0-12 years): Male	3
Female	123	Female	14
	651		17

MARITAL STATE:	Male	Female
Married	128	45
Single	387	61
Widowed	9	3
Divorced	1	—
	525	109

SYPHILIS—Cases tabulated, 255:

SEX: Male	172	Children (0-12 years): Male	7
Female	83	Female	6
	255		13

MARITAL STATE:	Male	Female
Married	67	42
Single	95	28
Widowed	1	5
Divorced	2	2
	165	77

CHANCHROID:

Single, Male 2

Number of treatments given—Gonorrhoea 8,592
Syphilis 6,743
Non-venereal 2,619
17,954

Sociological Data Relative to Reported Cases of Venereal Diseases for the Year Ending December 31, 1922

GONORRHOEA—Cases tabulated, 1,247:

SEX: Male 1,054
Female 193
1,247

Children (0-12 years): Male 4
Female 16
20

MARITAL STATE:	Male	Female
Married	294	80
Single	729	90
Widowed	24	6
Divorced	3	1
	1,050	177

AGES—Total 1,247

Male		Female	
12 years and under	4	12 years and under	16
From 12 to 20 years	105	From 12 to 20 years	77
From 20 to 30 years	575	From 20 to 30 years	70
From 30 to 40 years	264	From 30 to 40 years	27
From 40 to 50 years	80	From 40 to 50 years	3
From 50 to 60 years	21	From 50 to 60 years	0
From 60 to 70 years	5	From 60 to 70 years	0
	1,054		193

SYPHILIS—Cases tabulated, 346:

SEX—Male 246
Female 100
346

Children (0-12 years)—Male 8
Female 5
13

MARITAL STATE:	Male	Female
Married	99	54
Single	133	31
Widowed	4	6
Divorced	2	4
	238	95

AGES—Total 346

Male		Female	
12 years and under	8	12 years and under	5
From 12 to 20 years	16	From 12 to 20 years	21
From 20 to 30 years	108	From 20 to 30 years	40
From 30 to 40 years	59	From 30 to 40 years	22
From 40 to 50 years	43	From 40 to 50 years	9
From 50 to 60 years	10	From 50 to 60 years	3
From 60 to 70 years	2	From 60 to 70 years	0
	246		100

CHANCROID:

Number of males, 2. Single.
AGES—22 and 30 years.

Number of patients who discontinued treatment and had to be followed up 135

Number of patients who changed physicians 79

General Summary of Cases Reported During the Years 1920, 1921, and 1922

GONORRHOEA:	1920	1921	1922
Number of cases reported	1100	1135	1247
ADULTS—Male	971	978	1050
Female	113	140	177
CHILDREN (0-12 years)—Male	5	3	4
Female	11	14	16
	1100	1135	1247

SYPHILIS:	1920	1921	1922
Number of cases reported	973	596	346
ADULTS—Male	715	382	238
Female	229	194	95
CHILDREN (0-12 years)—Male	14	12	8
Female	15	8	5
	973	596	346

Medical Relief

There was an increase in the number of outside calls and office consultations. Total calls for district physicians, 568; in 1921, 469. Consultations at the City Hall, 528; in 1921, 450. The total number of vaccinations performed during the year was 5,665, against 6,521 in 1921.

Hospital Accommodation

In March of this year the La Salle Hospital was closed. Notwithstanding this we have been able at all times to hospitalize infectious cases when necessary to do so.

The Municipal Hospital records show that out of the 1,395 cases of diphtheria reported 976 were cared for at the King George Hospital, and of 884 cases of scarlet fever 650 received hospital treatment.

Dental Clinic

A report of the work done at the Dental Clinic at the Winnipeg General Hospital is included in this report.

Legislation Enacted

Provincial—

The regulations of the Provincial Board of Health respecting the natural and artificial lighting, the heating, plumbing, ventilation, and general hygienic and sanitary conditions, in cities, of portions of buildings contained below the street level used, or designed to be used, for the purpose of conducting therein the business of a barber shop, restaurant, cafe, billiard and pool room, bowling alley, shooting gallery or any other purpose of a public character were revised.

The main points amended are as follows:—

1. The permits to carry on such businesses are now to be obtained from the local health officers, instead of as formerly from the Provincial Board direct.
2. The occupation of cellars and basements where it is impossible to provide natural light is permitted, provided that adequate artificial lighting and a mechanical system of ventilation are installed.
3. Bath houses, laundries, offices, workshops, stores, factories, formerly prohibited in cellars, i.e., in basements where more than half the height of the rooms is below ground, are now permitted on the same terms as other businesses.

The effect of the above is to make Health Officers responsible supervising the conditions obtaining in all such premises.

The principal defect in the regulations is the lack of any definition of what constitutes a "business of a public character."

Regulations of the Provincial Board of Health respecting the Purchasing and Sale of Certain Meats.

Provides that all persons who, in the nature of their business, purchase by the carcase dressed meats of animals intended for sale by retail, shall keep a full and complete record of all such purchases, specifying the species of such animals, the number of carcases purchased, and the name and post office address of the person from whom purchased and the date thereof. A copy of all such records to be furnished the Board, or any representative thereof, at any and all times upon request or as may be required.

Regulations of the Provincial Board of Health governing Certified Milk.

In addition to the provisions contained in the Public Health Act, the regulations provide for a monthly examination of all employees of dairies supplying certified milk, by a physician designated by the Board. The dairy herds are to be under the rigid veterinary supervision of the Board. The milk must be only from cows that have been shown by clinical examination and the tuberculin test to be free from tuberculosis. The cows must also be free from all other diseases. No milk is to be labelled or sold as certified milk until application has been made and the Board has determined whether the equipment, methods of productnon and the subsequent handling of the milk conform to the standards prescribed for certified milk. The word "certified" not to be used unless the firm is complying in every respect with these regulations. Producers are required to pay to the Board monthly the sum of one cent for every quart produced and sold. Full and accurate statements to be made as to how the sum payable is arrived at. All books and records to be available to inspection.

City of Winnipeg.

By-law No. 10552 being a new dairy by-law. During the year the City having entered into an agreement for the testing of all cows in dairies supplying milk for use in the city, and also private cows kept in the city with the view of eradicating bovine tuberculosis, it became necessary to enact a new by-law in accordance with the regulations of the Dominion Government (Department of Agriculture). These regulations, which are printed as an addenda to the by-law, formulate the terms under which the Government agree to assist the City in the eradication of tuberculosis amongst cows. They provide that all dairies shall be licensed. That no license shall issue unless the dairy conforms to the required standard. That two years from the date of the first test of the cattle of a dairy the sale of unpasteurized milk within the city from said dairy shall be prohibited unless the veterinary inspector can certify that the said herd contains no re-actors. The City is to appoint inspectors to see that the undertakings and provisions are carried out. The Dominion Government Veterinaries are to carefully examine the cows and also to apply the tuberculin test. Animals re-acting are dealt with as follows:—

Cows which in the opinion of the inspector are affected with open tuberculosis and are distributing the germs through the milk, faeces or sputum to be sent to an abattoir and slaughtered in the presence of the veterinary inspector, who shall then direct how the carcass shall be disposed of. Re-actors to the test to be separated from non-re-actors. Owner given choice of disposal as follows: Immediate slaughter, slaughter after prepared for the block by dying off and feeding; retaining them in the herd, but selling no milk unpasteurized. Compensation is paid as follows: One-half of appraised value if destroyed as an open case of tuberculosis; two-thirds if destroyed as a re-actor at request of owner. Carcass to belong to owner, but to be disposed of as veterinary inspector may direct.

Milk or cream from a herd containing re-actors not to be sold in a raw state except to a dairy company for pasteurization. Tests to be made as often as necessary. All new cows to be tested before being placed in a herd of healthy cows. All dairies are to be divided into two classes: (a) raw milk dairies; (b) pasteurized milk dairies. Class (b) dairies need not be submitted to tuberculin test. When the work of eliminating tuberculosis has reached a satisfactory point, the Veterinary Director General may notify the Health Officer that the Department of Agriculture has terminated its work, and thereafter the municipality will be expected to maintain the standard reached. Re-actors are to be permanently marked.

The new dairy by-law is, of course, drafted so as to conform to the conditions laid down in the regulations just quoted. Every person who brings any cow or cattle into the city must report the same to the Health Officer in order that the cattle may be inspected.

Every cow kept within the city, whether at a dairy or for private use, must be tested and a certificate obtained from the Health Officer that the proper tests have been made and also that the premises where the cow is kept comply with the by-law. If the milk is offered for sale a license must also be obtained. Two years from the final passing of the by-law the sale within the city of unpasteurized milk or cream from any cow or herd is prohibited unless the Veterinary Inspector can certify that the cow is not a re-actor, or that the herd contains no re-actors, and is in his opinion free from tuberculosis.

The by-law further provides for the keeping of proper registers, inspections, issue of licenses, etc., and for the dividing of dairies in two main classes: (1) Raw milk dairies and (2) pasteurized milk dairies. The fees for licenses are: Dairies, $1.00 for each cow up to 10 cows; 50 cents for each additional cow. Milk depot, $10 for each vehicle. To keep a cow for private use, 50 cents. Cows kept for sale or exchange, 50 cents. The sections deal-

ing with inspection are mainly those of the former by-law and of the Public Health Act, and the standards are as formerly. Stables are to be kept clean, dry, thoroughly ventilated and drained. Floors of concrete or other impervious material, windows with 2 square feet of glass for each cow stall, an allowance of at least 500 cubic feet of air space for each cow.

In the city the minimum distance formerly required between a cow stable and the nearest dwelling (40 feet) has been reduced to 25 feet, and for 2 cows from 80 to 50 feet, but the requirements as to stable construction are made more stringent. Sewer, water, concrete floor, eaves troughs and rain-water leaders, windows equal in area to 1/20th of the floor area, ventilators extending through the roof of an area of 36 square inches for each cow, lime-washing, fly-proof manure bins, etc., are required. No fowl, hogs or sheep may be kept in the stable. Conditions are specified as to the equipment, utensils, etc., used in stores where milk is kept or stored. A maximum temperature for milk on sale of 50 degrees Fahrenheit is specified. The efficient sterilizing of all cows, bottles, vessels used, regulations regarding the taking and marking of samples, the condition of vehicles, the reporting of cases of sickness (contagious diseases) in the family or employees of dairykeeper and the restrictions to be imposed by the Health Officer in such cases. Specifications for the plant and equipment and methods in Milk Depots or places where milk is pasteurized and bottled are set forth at length.

The by-law is excellent and should go a long way towards improving not only the conditions in dairies proper, but also in regulating and getting into proper sanitary condition the large number of stables in the city where cows are kept for private use, some of which at the present time are very unsuitable for cow keeping.

Legislation Required

We are still without the by-law respecting extermination of rats, mice, bedbugs, cockroaches and other vermin which was prepared and sent to your Committee early in the year.

In view of the extremely large number of ordinary dwelling houses occupied as tenements, the lack of adequate sanitary conveniences therein, and the probability that never again will the majority of these large houses be occupied by one family only, we suggest that houses of this description at present so occupied be taken out of the class of tenements and placed in a class by themselves, and that the Building By-law be amended with that object. We suggest placing these houses under the jurisdiction of the Health Officer, giving him power to require the owners to effect reasonable improvements which will make the houses somewhat more suitable for occupation by several families. At present we cannot order any improvements because, technically, the houses are one-family dwellings and are illegally occupied as tenements. To require improvements as the law stands at present would be practically to recognize them as proper tenements.

Installation of Plumbing

Several sewers and water mains were constructed, and 117 plumbing notices were served. 74 outside closets were removed during the year, but 63 new houses were built on outlying streets without sewers, so that the net reduction in outside closets was only 11.

December 31, 1921		December 31, 1922	
Brick Pits	399	Brick Pits	388
Earth Pits	1	Earth Pits	1
	400		389

Chemical Closets, 6 only.

This represents a very small number of buildings without plumbing for a city of the size of Winnipeg.

Since 1905 the reduction of outside closets has been as follows:—

	Box Closets	Earth Pits	Brick Pits	Totals
June 30, 1905	6,153	186	.....	6,339
December 31, 1905	3,182	80	1,020	4,912
June 30, 1906	2,255	747	1,325	4,327
December 31, 1906	1,105	662	1,626	3,393
December 31, 1907	80	201	1,535	1,816
December 31, 1908	25	103	1,492	1,625
December 31, 1909	.....	53	1,432	1,485
December 31, 1910	.....	52	1,300	1,352
December 31, 1911	.....	47	1,171	1,218
December 31, 1912	.....	31	1,041	1,045
December 31, 1913	.....	38	838	877
December 31, 1914	.....	18	648	666
December 31, 1915	.....	14	504	518
December 31, 1916	.....	9	447	446
December 31, 1917	.....	11	442	453
December 31, 1918	.....	5	421	426
December 31, 1919	.....	6	438	444
December 31, 1920	.....	1	402	403
December 31, 1921	.....	1	399	400
December 31, 1922	.....	1	388	389

Extension of Sewers and Water Mains

The construction of new sewers and water mains has been well followed up. It is not of course practicable to construct sewers in every street on the outskirts of the city, especially where there are only one or two houses on a street. The following list, which was sent to the Public Utilities Committee, is prepared from the census of outside closets taken by our inspectors in December.

List of Streets with Four or More Houses Requiring Sewers or Water Mains

FORT ROUGE

Street	Block	Houses	Total	Remarks
Beaverbrook St.	*Haskins to Jackson	4		
Beaverbrook St.	*Jackson to Lennon	8	12	
Lindsay St.	Haskins to Lennon	2		
Lindsay St.	Lennon to G.T.P. Track	2	4	
Oak St.	Haskins to Jackson	1		
Oak St.	Jackson to Lennon	3	4	
Cambridge St.	Haskins to Jackson	5		
Cambridge St.	Jackson to Lennon	6		
Cambridge St.	Grant to Mathers	4	15	
Mulvey Ave.	Guelph to Wilton	2		Sewer ordered Harrow to Wilton, Feb. 13, 1922; cancelled Feb. 27, 1922.
Mulvey Ave.	Wilton to Rockwood	2	4	

Street	Block	Houses	Total	Remarks
Garwood Ave.	Stafford to Harrow	5		Water main ordered June 28, 1915.
Garwood Ave.	Wilton to Rockwood	1		
Garwood Ave.	Rockwood to Thurso	1	7	
Dudley Ave.	Harrow to Guelph	5		
Dudley Ave.	Rockwood to Thurso	2	7	
Scotland Ave.	Wentworth to Stafford	1		
Scotland Ave.	Harrow to Guelph	1		
Scotland Ave.	Guelph to Wilton	4		
Scotland Ave.	Wilton to Rockwood	1		
Scotland Ave.	Thurso to Cambridge	2	9	
Weatherdon Ave.	Aynsley to Lilac	1		Sewer ordered Pembina Highway to Lilac, Feb. 13, 1922.
Weatherdon Ave.	Stafford to Harrow	8		
Weatherdon Ave.	Harrow to Guelph	2		
Weatherdon Ave.	Rockwood to Thurso	3	14	
Carter Ave.	Stafford to Harrow	4		
Carter Ave.	Harrow to Guelph	2	6	
Hector St.	Wentworth to Stafford	3		Sewer ordered from Wentworth to West Line of Lot 36, Block 23, June 17, 1922.
Hector St.	Stafford to Harrow	4	7	
Ebby Ave.	C.N.R. to Pembina Highway	5		
Ebby Ave.	Lilac to Wentworth	3	8	
Pembina Highway	Scattered	6	6	
Parker Ave.	*Pembina Highway to C.N.R.	1		Sewer needed for surface drainage. Complaints every year of stagnant water and lack of drainage in this district.
Parker Ave.	C.N.R. to Rockwood	6		
Parker Ave.	Rockwood to Thurso	3		
Parker Ave.	Thurso to Nathaniel	5	15	
	Total		118	
On streets with less than four houses, or where sewers and water mains have been recently installed			51	
			169	

ASSINIBOINE AVE. TO HIGGINS AVE.

Street	Block	Houses	Total	Remarks
Dundas St.	Portage and Ellice	4		
Dundas St.	Sargent and Wellington	1	5	

Street	Block	Houses	Total	Remarks
Centre St.	Portage and Ellice	2		
Centre St.	Ellice and Sargent	3	5	
Downing St.	St. Matthew's and Ellice	1		
Downing St.	Ellice and Sargent	2		
Downing St.	Sargent and Wellington	1		
Downing St.	Wellington and Yarwood	4	8	
Dominion St.	St. Matthew's and Ellice	1		
Dominion St.	Sargent and Wellington	1		
Dominion St.	Wellington and Yarwood	2		Water main laid.
Dominion St.	Yarwood and Richard	1	5	Contract for sewer let.
Wall St.	Ellice and Sargent	2		Sewer advertised Nov. 20, 1922; water main laid.
Wall St.	Sargent and Wellington	1		Water main laid.
Wall St.	Wellington and Richard	1		Water main laid.
Wall St.	Richard and Notre Dame	2	6	Water main laid.
Keewatin St.	William and Elgin	3		Water main laid.
Keewatin St.	Logan and C.P.R. Main Line	5	8	Private sewer only. Water main laid.
Erin St.	Richard to Notre Dame	5	5	Water main laid. Sewer ordered Feb. 13, 1922; cancelled March 27, 1922.
Spruce St.	Ellice and Dauphin	1		
Spruce St.	Richard and Notre Dame	4	5	Water main laid.
			47	
On streets with less than four houses or on streets where sewer and water main have recently been constructed			33	
	Total		80	

C.P.R MAIN LINE TO NORTHERN CITY LIMITS

Street	Block	Houses	Total	Remarks
Redwood Ave.	*Prince to McPhillips	8	8	
Atlantic Ave.	Airlies to McPhillips	2		Water main laid.
Atlantic Ave.	McPhillips to Fife	2	4	
Bannerman Ave.	C.P.R. Beach Line to McPhillips	4	4	Water to No. 801.
Dalton St.	*Mountain to Machray	5	5	
Inkster Blvd.	Parr to Arlington	3		
Inkster Blvd.	C.P.R. Beach Line to Sinclair	2	5	

Street	Block	Houses	Total	Remarks
Kildarroch St.	Mountain to Church	3		
Kildarroch St.	Church to Machray	2	5	
Kitchener Ave.	Near Keewatin St.	5	5	Dairies.
Monreith St.	Mountain to Church	4	4	
Mountain Ave.	McPhillips to Fife St.	6		
Mountain Ave.	Kildarroch to Robertson St.	1	7	
On streets with less than 4 houses or where sewer and water mains have recently been constructed			47	
			40	
	Total		87	

ELMWOOD

Street	Block	Houses	Total	Remarks
Sandhurst Ave.	*Kent to C.P.R. Molson Branch	6		Water main laid.
Sandhurst Ave.	Molson Branch C.P.R. to Grey	1	7	
Herbert Ave.	Keenleyside to Kent	3		
Herbert Ave.	Kent to Green	3		
Herbert Ave.	Green to Foster	7	13	Water main laid to No. 731.
Union Ave.	C.P.R. Molson Branch to Grey	2		Water main laid.
Union Ave.	Brazier to Kelvin	3	5	Water main laid.
Beach Ave.	*Keenleyside to Kent	5		
Beach Ave.	Kent to Cameron	1		Sewer laid.
Beach Ave.	C.P.R. to Grey	2	8	
Harbison Ave.	Wolfe to Grey	7	7	Water main laid.
			40	
On streets with less than 4 houses or where sewer and water mains have recently been laid			13	
	Total		53	

Summary

Fort Rouge	118
Assiniboine Ave. to C.P.R. Main Line	47
C.P.R. Main Line to North City Limits	47
Elmwood	40
	252
On streets with less than 4 houses or on streets where sewer and water mains have been recently constructed and plumbing notices served	137
Total	389

Housing

Although 745 new houses were built in the city during the year—a much larger number than for many years—it cannot be said that the housing situation, as reported in our Housing Surveys of 1918 and 1921, is materially improved. Indeed, our recent observations seem to indicate that the overcrowding of families in houses is increasing. Apparently it may be some time before there is such a surplus of houses as would justify the Department making any concerted move to deal radically with the many houses now unlawfully occupied as tenements. The reports of the Chief Health Inspector and the Tenement Inspector go into this question more fully.

Educational Work

The moving picture film "The Rat Menace" was shown in many of the theatres. The Health Officer and some other members of the staff addressed various gatherings of citizens on topics relating to health. The educational work of the division of Child Hygiene, as carried out at the clinics held at the Dispensary and also in the houses of the people by means of the Child Welfare Nurses, was continued successfully during the year. Educational work was also done by the Inspectors of the Division of Communicable Diseases and the Tuberculosis Nurses in the methods of preventing the spread of disease; by the Sanitary Inspectors as to the proper methods of care of garbage and manure, lighting, ventilation and general sanitary conditions in dwellings and other buildings; by the Food Inspectors as to the proper care of food kept or prepared for sale and the sanitary conditions necessary in food stores; by the Dairy Inspectors in the continuous campaign they conduct to instruct dairymen as to the methods necessary to produce clean milk.

The Sanitary Inspectors' programme for their own education was as follows:—

Syllabus for 1921-1922
Manitoba Branch

1921

Nov. 26—Opening Address by Dr. A. J. Douglas, Medical Health Officer, Winnipeg, Man.: "Diphtheria."

Dec. 3—Questions and Discussion.

Dec. 10—"Tuberculosis," Dr. B. H. Olson.

Dec. 17—Lecture and Demonstrations, Dr. W. Boyd, Pathological Dept., Winnipeg General Hospital.

1922

Jan. 7—Illustrated Lecture, "The Natural Defences of the Body," Dr. J. H. Leeming, Bacteriologist, City of Winnipeg.

Jan. 14—Questions and Discussion.

Jan. 21—Lecture by Dr. Gordon Bell, Chairman Provincial Board of Health, Manitoba.

Jan. 28—Questions and Discussion.

Feb. 4—Address, J. Shepherd, A.R. San.I., Sanitary Inspector, City of Winnipeg.

Feb. 11—Questions and Discussion.

Feb. 18—Address, Dr. E. S. Bowman, M.R.C.V.S., Veterinary Inspector, City of Winnipeg.

Feb. 25—Questions and Discussion.

Mar. 4—"Composition of Milk," F. Hudson, Graduate "Honors," Kingston Dairy College, Dairy Inspector, City of Winnipeg.

Mar. 11—Questions and Discussion.

Mar. 18—Social Evening.

Changes in the Staff

It is with the deepest regret that I have to chronicle the lamentable death of Dr. C. C. Field of the staff of the Bureau of Child Hygiene. This was a most serious blow to the Department.

Dr. Field, a man of the highest abilities and attainments, with a far-reaching reputation as a pediatrist, was cut down suddenly by pneumonia in the prime of his life and usefulness. His death caused widespread sorrow.

The services Dr. Field rendered the cause of humanity in this city during his twenty years' residence cannot be computed; he was everything that a physician of the highest type should be, and his experience and teaching will long survive his passing. He had been on the staff of the Bureau of Child Hygiene for two years, and it is hard to realize that we will see him no more.

Dr. F. G. Schwalm was appointed to succeed Dr. Field.

On the 30th of September, 1922, Mr. J. H. Pearson retired after twenty-five years continuous service as Health Inspector. It is not too much to say that no man ever served the City more faithfully or disinterestedly than did Mr. Pearson. So far as the development of the Health Department is concerned, Mr. Pearson was part of it right from the beginning of modern methods of sanitation. When he joined the staff at the time of its re-organization in 1897, it consisted of only five persons, including the Medical Health Officer. Mr. Pearson has borne a worthy part in all the reforms and improvements that have taken place since that time, and when the history of public health in Winnipeg comes to be written, he will play no mean part therein. A man of high character, he was noted for his fairness, tact and consideration in dealing with the many perplexing and complicated situations that came under his supervision. The Department and the citizens of Winnipeg lose a valuable official and one who has been a part of the life of this community since 1871. It is a pleasure to be able to state that Mr. Pearson leaves us in good health and full of optimism. He felt, having passed the age limit, that a period of rest and recreation might be his due. He carries away with him the best wishes of every member of the Department.

Assistant Chief Inspector E. W. J. Hague was promoted to the position left vacant by Mr. Pearson—a most worthy successor. Mr. Hague came to us twenty-five years ago as a district sanitary inspector and is now recognized as one of the leading men in public health in Western Canada. There is no question as to Mr. Hague's ability and attainments; that he will adorn his new position goes without saying.

In conclusion I desire to express to the members of the staff my very sincere appreciation of the faithful manner in which they have discharged their duties throughout the year.

Respectfully submitted,

A. J. DOUGLAS,
Medical Health Officer.

REPORT OF THE DIVISION OF SANITARY INSPECTIONS AND HOUSING

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:

I have the honor to submit herewith report of the work accomplished in those branches of the Health Department, as set forth in my own report and those of the Tenement and Smoke Inspectors as follows:—

Abatement of Nuisances

The large table which takes up the next few pages sets forth in a concise manner a summary of the work accomplished by the Inspectors of this Division during the year. The total number of inspections and re-inspections made during the year was 44,512. Reckoning 13 inspectors working 300 days per annum, this works out at 11⅓ inspections per day per man.

SANITARY INSPECTIONS FOR THE YEAR 1922

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Complaints received in office	137	181	139	181	300	226	224	220	196	156	138	105	2,203
Complaint made to Inspector	57	76	63	78	107	101	54	63	63	54	67	57	840
Total	194	257	202	259	407	327	278	283	259	210	205	162	3,043
Of above—													
Complaints re non-removal of garbage, etc.	25	72	18	33	53	46	35	70	20	26	25	17	440
Complaints re nuisances, etc.	169	185	184	226	354	281	243	213	239	184	180	145	2,603
Total	194	257	202	259	407	327	278	283	259	210	205	162	3,043
Complaints well founded	169	177	178	216	342	273	237	236	223	171	180	137	2,539
Complaints unfounded or rectified previous to receipt of same	25	80	24	43	65	54	41	47	36	39	25	25	504
Total	194	257	202	259	407	327	278	283	259	210	205	162	3,043
Written notices (informal)	257	245	129	193	342	601	269	271	349	255	302	176	3,389
Written notices (statutory)	147	194	191	373	506	308	260	233	269	249	300	199	3,229
Verbal notices or warnings	626	696	779	1,096	1,477	1,024	743	881	832	750	782	494	10,180
Total	1,030	1,135	1,099	1,662	2,325	1,933	1,272	1,385	1,450	1,254	1,384	869	16,798
INSPECTIONS MADE													
Dwelling houses	198	213	180	202	268	249	259	205	264	237	175	255	2,705
Tenement and apartment blocks	71	73	94	69	71	71	64	61	79	56	71	79	859
Hotels and lodging houses	56	72	80	56	21	17	13	15	8	18	21	16	393
Schools and public buildings	8	14	8	6	1	2	..	1	1	1	15	13	70
Abattoirs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Workshops and factories	32	39	41	39	61	30	23	47	43	31	44	51	481
Offices	.....	5	5	6	8	6	8	7	2	15	6	3	71

Restaurants and stores	38	56	36	38	29	24	26	54	52	29	40	67	489
Stables, livery, feed and sale	13	21	19	12	38	18	20	18	19	23	21	17	239
Stables, private	80	156	123	184	252	417	162	193	152	743	890	258	3,610
Laundries, hand	61	73	46	139	113	105	46	49	53	39	42	49	815
Laundries, steam	6	5	5	5	4	9	6	5	5	3	6	2	61
Dog kennels	6	5	2	17	21	12	10	9	11	6	5	2	106
Theatres and places of amusement	1	2	11	.....	3	.....	2	.....	.....	1	2	1	23
Public bath houses	8	8	.....	10	9	8	8	6	8	8	8	14	95
Public bath houses, water samples	.....	.....	.....	1	33	18	15	11	13	6	9	8	114
Comfort stations, public	20	20	20	20	20	5	20	12	21	20	20	20	218
Maternity and Infants' homes	4	4	8	3	3	1	.....	.....	.....	.....	.....	.....	23
Hospitals, private	.....	1	6	.....	3	1	1	1	.....	.....	.....	.....	13
Common drinking cups and towels	5	8	7	8	5	5	6	4	4	3	6	4	65
Barber shops	11	14	9	10	13	10	13	12	9	7	10	10	128
Second-hand stores and junk yards	39	40	47	128	96	23	27	32	29	19	11	22	513
Pool rooms	21	125	30	48	69	26	22	18	21	15	10	20	425
Yards, sheds, areas, etc.	554	787	884	948	1,760	1,079	753	901	837	704	741	498	10,446
Vacant lots (nuisances)	66	118	81	130	118	87	65	86	67	67	80	56	1,021
Streets and lanes (nuisances)	359	235	277	237	529	290	180	172	223	273	243	209	3,227
Infectious diseases (houses placarded, disinfected, etc.)	1	3	2	1	.....	.....	2	.....	.....	.....	10	7	26
Contractors' closets	.....	.....	.....	.....	.....	111	35	95	30	19	.....	.....	290
Total number of inspections	1,658	2,097	2,021	2,317	3,548	2,624	1,786	2,014	1,951	2,343	2,486	1,681	26,526
Re-inspections	1,018	1,232	1,010	1,268	2,098	2,097	1,692	1,515	1,730	1,426	1,502	1,398	17,986
Total number of inspections and re-inspections	2,676	3,329	3,031	3,585	5,646	4,721	3,478	3,529	3,681	3,769	3,988	3,079	44,512

SANITARY INSPECTIONS FOR THE YEAR 1922—Continued

DEFECTS AND NUISANCES DISCOVERED AND ABATED	January	February	March	April	May	June	July	August	September	October	November	December	Total
Drains, choked or defective	19	16	15	21	27	31	32	27	30	31	26	18	293
Sinks and wash basins, choked or defective	23	33	19	57	23	21	19	25	29	31	18	21	319
Water closets and fittings, choked or defective	43	56	50	69	51	29	31	38	48	40	30	35	520
Baths and fittings, choked or defective	3	2	1	8	7	12	3	3	2	3	.....	2	46
Urinals and fittings, choked or defective	6	7	8	18	11	4	4	1	3	4	.....	4	70
Soil pipes, clean-outs, etc., choked or defective	15	12	16	15	12	13	14	12	21	17	13	11	174
Catch-basins and traps, choked or defective	11	13	13	18	34	26	22	25	28	18	16	19	243
W. C. compartments, defective light and ventilation	9	4	7	4	5	6	4	8	10	15	9	7	88
Plumbing and water pipes, frozen	78	50	32	10	2	.....	.....	.....	.....	.....	1	52	225
Vent stacks, frozen	7	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Sewer connections, frozen	4	2	3	6	1	.....	.....	.....	.....	.....	.....	2	18
Water services, defective or cut off	38	36	44	32	23	18	34	20	38	30	20	32	365
Plumbing fixtures, insufficient	3	5	5	7	20	11	7	3	6	8	11	7	93
New plumbing, notice to instal	.....	5	9	2	7	16	26	10	8	8	13	13	117
Total plumbing defects	259	242	222	267	223	187	196	172	223	205	157	226	2,579
Dirty yards, courts, sheds, etc.	179	427	414	676	827	539	431	473	439	359	349	278	5,391
Poultry kept in dwelling	2	4	8	12	8	4	3	7	6	6	13	10	83
Pigeons kept in dwelling	.....	.....	1	.....	2	4	2	2	14	2	1	1	32
Animals kept in dwelling	3	2	3	2	.....	1	1	2	.....	3	.....	.....	17
Poultry kept under insanitary conditions	.....	9	15	27	37	30	19	35	33	23	35	2	265
Cows or other cattle kept under insanitary conditions	12	1	3	7	11	12	7	1	4	22	35	19	134
Cows or other cattle kept too close to dwelling	5	5	6	8	7	6	3	5	.....	5	7	4	61
Hogs, unlawfully keeping	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	2
Horses, insanitary stables	3	3	5	14	20	10	11	11	10	13	16	9	125

Garbage receptacles	82	122	124	231	494	560	252	304	307	145	190	108	2,919
Refuse receptacles	82	75	78	157	212	109	91	97	104	113	103	58	1,279
Manure bins, defective	55	65	53	110	96	93	57	47	60	63	76	57	832
Ash receptacles	26	11	7	8	18	4	3	4	14	10	17	11	133
Paper receptacles	16	11	12	12	21	19	26	15	24	14	19	15	204
Cellars and basements, defective	22	23	21	36	69	70	64	64	66	64	45	37	581
Dwellings, dilapidated and insanitary	8	15	10	13	23	11	22	23	18	17	9	15	184
Tenements, dilapidated and insanitary	.....	3	.....	3	3	.....	2	1	6	3	.....	.....	21
Offices and workshops, dilapidated and insanitary	4	2	.....	1	2	1	.....	1	6	2	2	6	26
Dilapidated and insanitary other buildings	3	2	5	6	5	5	9	5	5	6	62	16	129
Overcrowding (day inspections)	9	21	6	12	20	10	11	11	15	20	18	19	172
Overcrowding (night inspections)	.....	.....	.....	.....	1	.....	.....	.....	44	.....	3	.....	48
Overcrowding (notices)	7	5	1	9	6	2	5	6	8	10	6	3	68
Rat-infested buildings	3	5	9	8	8	7	9	5	6	8	7	3	78
Cockroach-infested buildings	2	.....	4	9	2	3	3	4	2	2	2	2	35
Bed-bug infested buildings	.....	2	5	7	13	10	22	27	22	12	3	3	126
Chimneys, defective	7	6	5	8	4	4	5	8	12	8	7	6	80
Roofs, defective	2	3	25	15	16	20	29	24	29	21	14	6	204
Eavestroughs and rain water leaders, defective	3	6	6	31	47	23	44	45	45	28	30	10	318
Gas fittings and piping, defective	6	5	11	2	6	2	2	1	1	3	3	2	44
Furnaces and heating apparatus, defective	21	14	4	2	4	3	2	.....	10	5	2	11	78
Refrigerators, defective	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	3
Lighting, defective	1	6	13	15	6	4	5	7	6	8	5	2	78
Ventilation, defective	1	6	6	14	11	6	7	7	5	6	8	1	78
Pit closets, concrete or brick, notices	.....	9	5	3	12	15	9	19	13	22	9	16	132
Contractors' closets, notices	16	14	15	44	150	224	135	91	83	41	53	21	887
Chemical or patent closets	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2
Stagnant water, vacant lots	.....	.....	7	24	3	4	4	.....	.....	.....	.....	.....	42
Other nuisances, vacant lots	54	41	68	117	105	71	53	37	53	60	75	57	791
Nuisances on lanes or streets	315	281	253	203	507	68	176	166	212	260	189	177	2,807
Total number of defects	949	1,204	1,208	1,849	2,778	1,957	1,524	1,554	1,682	1,385	1,414	985	18,489
Total plumbing defects	259	242	222	267	223	187	196	172	223	205	157	226	2,579
Total defects discovered (including plumbing defects)	1,208	1,446	1,430	2,116	3,001	2,144	1,720	1,726	1,905	1,590	1,571	1,211	21,068

SANITARY INSPECTIONS FOR THE YEAR 1922—Continued

DEFECTS AND NUISANCES DISCOVERED AND ABATED	January	February	March	April	May	June	July	August	September	October	November	December	Total
Smoke Nuisances													
Chimneys and smoke stacks (observations)	57	14	14	15	23	17	37	13	27	37	52	61	367
Furnaces, boilers, fuels, etc., inspections of	86	89	73	58	76	67	61	34	76	81	93	81	875
Total	143	103	87	73	99	84	98	47	103	118	145	142	1,242
Notices, statutory	2	.....	.....	.....	2	1	2	5	4	2	.....	1	19
Notices, verbal	37	21	23	18	16	10	7	7	.....	16	37	31	223
Total	39	21	23	18	18	11	9	12	4	18	37	32	242
Miscellaneous													
Milk samples taken	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Water samples taken	.....	4	4	.....	1	7	.....	.....	1	1	.....	.....	18
Chemical tests (plumbing and drainage)—													
Positive results	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2
Negative results	.....	.....	.....	3	2	2	.....	.....	1	4	1	3	16
Cases reported for prosecution	5	3	2	2	8	20	5	6	8	3	6	4	72
Time attending court (hours)	6	3	5	5	5½	7	.....	2	3	4	3	2½	46

Frozen Plumbing and Water Pipes

There were 225 cases of frozen plumbing or water pipes reported, as against 157 in 1921—an increase of 67. In some cases these pipes were frozen in cellars or underneath the floors of buildings. Where the freezing is clearly due to defective building construction, thus allowing cold to penetrate underneath foundations, especially in houses without cellars, the owners are notified. In a great many cases, however, the freezing is due to the lack of care on the part of the occupants. Especially is this the case in lock-up stores. Many proprietors of small stores do not seem to care whether they have the use of their plumbing fixtures or not, and so fail to keep their stoves going at night and over week-ends. It requires a good deal of vigilance on the part of inspectors during the winter to check this practice. Having by years of effort succeeded in getting outside closets abolished and the premises connected with sewers and water mains and plumbing fixtures installed therein, it is obvious that tenants cannot be permitted to use these fixtures during the summer only. They should be kept in working order and sanitary condition at all times.

Other Plumbing Defects

The total plumbing defects noted was 2,579, an increase of 269 over 1921, and of these 1,665 were due to choked or defective drains, sinks, washbasins, water closets, baths, urinals, etc. A good deal of new plumbing was installed. The 117 notices to install new plumbing only refers to cases where new sewers or water mains were constructed. There were about 745 new dwellings erected, 682 of them on streets with sewers and water mains, and plumbing was installed in these without the necessity of serving notices. This was also the case where new stores and commercial buildings were erected. As a matter of fact, there are only 389 outside closets in use in the whole city. This means that less than one per cent. of our buildings are without plumbing.

Water services cut off for non-payment or defects numbered 365, or 94 more than last year. These are mostly reported by the Waterworks Department, and it falls to the Health Department to bring pressure to bear to get the water supply again restored.

Garbage, Manure or Other Receptacles

In this connection the following notices were served:—

To provide new garbage cans	2,919
To provide receptacles for incombustible refuse	1,279
To provide new manure bins or to repair old ones	832
To provide ash receptacles	133
To provide boxes for waste paper	204
Total	5,367

These receptacles wear out so fast that the work is never done. The inspectors spend a good deal of time endeavoring to induce citizens to keep all their garbage in covered metallic water-tight cans, and all manure in fly-proof bins, explaining that this is absolutely essential in a large city in order to keep down both flies and rats, as well as to prevent unpleasant odors. We take the ground that a good garbage can is just as necessary an article of household equipment as is a kettle or a washboiler.

Scavenging

Our inspectors are in a position to observe whether the scavenging of the city is properly performed; in fact, they are required to note on their daily

reports any apparent neglect. If any omissions are reported, the matter is at once taken up with the Street Commissioner's Department, which now conducts the scavenging operations. During the year no serious complaints were made. In many cases, even where complaint was made, householders were themselves to blame for not keeping the refuse as required by regulations of the Health Committee. A little delay occurred during the spring clean-up in the removal of tins and incombustible refuse, but this was soon remedied when the matter was brought to the attention of the Street Commissioner, and speaking generally the scavenging service during the year, and especially during the latter half, has been excellent.

Contractors' Closets

As there was a good deal more building done this year than last, we find an increase in the number of permits given contractors to provide sanitary conveniences for their men. Four hundred and ninety-six permits were issued and 887 inspections were made. There is often a good deal of trouble to get contractors to see the importance of the proper construction and maintenance of these contrivances. As they are a potential means of spreading disease, they must be water-tight, fly-proof, and regularly cleaned and disinfected. We were obliged to prosecute in 18 cases where our notices were disregarded.

Livery, Feed and Sale Stables

Permits issued 21, a decrease of 4. Inspection 239. There seems to be a growing disposition to keep cows for sale in these stables. In cases where the stables are too close to dwellings this should not be allowed. An apparent defect in the by-law prevents our regulating this matter as we think it should be regulated, and it may become necessary to ask for an amendment.

Keeping of Animals

In a large city there are always a number of complaints regarding the keeping of animals. A large number of people are desirous of keeping horses, cows, poultry, etc., but are not prepared to construct proper buildings in which to keep them. The policy of the Department is not to prevent the keeping of animals, but at the same time it is necessary to ensure that sanitary conditions are maintained in order that flies and rats may be kept down, and also that no annoyance will be occasioned to other citizens by reason of offensive odors. With the passing of the new Dairy By-law last May it became necessary to obtain a complete census of all cows and cow stables in the city. The new by-law requires that all persons keeping a cow, whether for private use or for dairy purposes, shall obtain a permit. Every cow is to be tested by the Dominion Government Veterinaries, and the stables are to be made to comply strictly with the provisions of the by-law, including sewer connection, water, concrete floors, eavestroughs and rain-water leaders, windows equal in area to 1/20th of the floor area of the stable, ventilating shaft, 500 cubic feet of air space for each cow, limewashing, fly-proof manure bins, etc. The distance which a cow stable for one cow is required to be from the nearest dwelling is now 25 feet, and 50 feet for 2 cows, as against 40 feet and 80 feet respectively in the old by-law. This concession will permit a good many persons to keep cows who were formerly debarred on account of the small size of their lots, but it becomes increasingly necessary to ensure that the stables are constructed and maintained in a thoroughly sanitary manner.

The result of the stable census, which included all animals, is given below:—

Total occupied stables	814	Increase since 1920	7
Total Livery, Feed and Sale Stables	24	Increase since 1920	3
Total stables with 6 or more animals	207	Increase since 1920	68
Total stables with 5 or less animals	634	Decrease since 1920	40
Total horses kept	3,707	Decrease since 1920	97
Total dairy cows	270	Decrease since 1920	91
Total dairies within City Limits	9	Decrease since 1920	3
Total cows kept in Feed and Sale Stables	132	Increase since 1920	85
Total private cows	269	Increase since 1920	56
Total all cows	671	Increase since 1920	50
Total percentage of stables with sewer connection	53%	Increase since 1920	21%
Total percentage of stables with concrete floors	56.1%	Increase since 1920	26%

Total other animals: 80 pigs, 15 goats, 11 calves, 2 sheep, 9 racoons.

Our inspectors are now checking up all the cow stables with the object of requiring them to be made to conform strictly to the provisions of the new by-law. Within the next year we hope to see a vast improvement in their condition. The keeping of cows, however, has always been difficult to control because so many persons buy a cow in the spring, keep it with the herd on the prairie all summer, and then bring it in when it gets too cold in the fall and place it in an insanitary shed or chicken house .

As an indication of the work done this year the following figures are given:—

Poultry—

Keeping fowls in dwellings or in sheds too close to or attached to dwellings	83
Keeping pigeons in dwellings or in sheds too close to or attached to dwellings	32
Total	115
Complaints regarding other animals kept in dwelling (mostly dogs or cats)	17

Larger Animals—

Keeping cows in sheds too close to dwelling	61
Keeping cows in dilapidated or insanitary sheds or stables	145
Keeping horses in dilapidated or insanitary sheds or stables	287
Keeping calves in dilapidated or insanitary sheds or stables	28
Keeping goats in dilapidated or insanitary sheds or stables	8
Keeping sheep in dilapidated or insanitary sheds or stables	
Keeping pigs in dilapidated or insanitary sheds or stables	*80
Total	609

These animals were kept in 236 different stables.

Action was taken and resulted as follows:—

Stables vacated and placarded	44
Stables vacated but not placarded	47
Stables improved	29
Stables in which a reduction in the number of animals kept was made	12
Stables demolished	4
Stables converted to garages or other uses	3
Extension given till spring, 1923	19
Pending	78
Total	236

Animals removed as follows: —

Horses	67
Cows	81
Calves	15
Goats	4
Total	167

*The 80 pigs were all at one premises, where a man started a pig ranch contrary to by-law. Under notice to remove.

Dog Kennels

Permits issued, 21. Inspections made, 106. We received very few complaints regarding dog kennels during the year.

Nuisances in Yards, Sheds, Lanes, Vacant Lots, Etc.

Dirty yards, courts, sheds, etc.	5,391
Stagnant water on vacant lots	42
Other nuisances on vacant lots	791
Nuisances on lanes or streets	2,807
Total	9,031

When so many nuisances of this type are reported in spite of the fact that there are 13 district inspectors, one sometimes wonders what the city would be like if there were no sanitary inspectors and no effort made to prevent such nuisances. If, in addition, we add the necessary inspections in connection with the providing of proper receptacles for garbage and refuse, and the inspections necessary in regulating the keeping of animals, including the prompt removal of manure, we get a total of over 15,000 first inspections out of 25,000, to say nothing of a large number of re-inspections necessary to see nuisances are abated. There are 236 miles of lanes in the city which must be regularly patrolled. This part of the work, therefore, takes up a good deal of the time of inspectors, and does not leave so much time available for improving conditions inside of houses and other buildings as could be desired.

This work, however, is of the first importance and must be given precedence. The keeping of the city clean, the minimizing of the propagation of flies and rats, the prevention of nuisances due to offensive odors caused by accumulation of decaying vegetable matter is absolutely necessary for the health and comfort of citizens. The worst feature is the constantly recurring nuisances of this character. As fast as one is abated, others are discovered. They are not all, of course, of the same magnitude. The inspectors are very reasonable with the authors, first giving informal notices and copies of the regulations of the Health Committee and following these up, if necessary, by statutory notices, which generally have the desired effect. It is, however, worth considering whether a little more drastic action in the way of police court prosecutions would not result in a better observance of the by-laws and regulations.

Nuisances Compulsorily Abated and Charged as Taxes

It was not found necessary to take any action under this Charter section this year.

Compulsory Sewer Notices

None served during 1922.

Applications for City Installed Plumbing

Only 9 such applications were approved by the City Council during the year. In 1921 there were 19.

Overcrowding

Only 172 day inspections and 48 night inspections were made for overcrowding, and 68 notices were served to abate overcrowding. Owing to shortage of houses, action re overcrowding was only taken where it was absolutely necessary. Such overcrowding as we find at present, however, is not so much room overcrowding as a crowding of too many families into one house. When attic rooms are rented as a separate dwelling for a family, they frequently fall short of the requirements for cubic air space on account of the low and slanting ceilings of such rooms. Sometimes the overcrowding is due to a family failing to use all the available rooms. Several times we have found families with a whole house at their disposal, but attempting to live in one room on account of the cost of heating.

Housing

There were 745 new houses built during the year, being an increase of nearly 300 over last year. One apartment block of 23 suites was also completed. Two hundred and nineteen of the new houses were erected under the auspices of the Winnipeg Housing Commission and 526 by private enterprise. It is estimated that the cost of building has decreased 27% during the last two years. The work being done by the Housing Commission is very encouraging. Financially the scheme is thoroughly sound and the City is safeguarded against possible losses. Re-payments are largely in excess of requirements. Only 5 loans out of 578 are in arrears. It is estimated that the City will derive about $60,000 more in taxes for 1923 by reason of the new dwellings erected under the scheme. The administration expenses are low. The purchaser of one of the Housing Commission's houses is sure of getting a well-built house. Profits have already been made and a reserve fund of $10,000 set aside for contingencies. By the purchase of lumber in large quantities it is estimated that an average amount of $218 per house has been saved to each borrower, and, moreover, he gets good lumber. The houses are all built within the City Limits, thus checking the constant exodus to the suburbs. The scheme is a standing object lesson of what can be done in the way of good house construction by means of standard specifications and the constant supervision during erection by experts employed by the Commission. The specifications used by the Commission—and these are varied to suit the various types of construction—might with advantage be incorporated in the Building By-law of the City. It is evident, by the fact that 526 dwellings were built in 1922 by private contractors, that the construction of dwellings is going to be somewhat more brisk, and the number built annually will probably increase as the cost of materials further diminishes. The specifications used by the Commission were carefully drawn with a view of getting a proper insulation so as to ensure the erection of dwellings warm, comfortable, and fit to withstand the rigors of our winters. This Department has frequently advocated a legal standard for securing this desirable end. The ordinary citizen building or buying a house knows little or nothing of the proper methods of building construction. Such a by-law would ensure at least a minimum standard of warmth. This recommendation is based upon years of observation of the trials, discomfort, and even downright misery experienced by citizens who

have been compelled to live in houses built for sale but not for use. The City might well consider the desirability of enacting such legislation, and by so doing would ensure the gratitude of thousands of tenants in years to come, and also reduce the cost of future inspections by officials, notices to owners to make good defects, and the all-round trouble for officials, owners, and tenants experienced at present in the case of many houses built without any restrictions as to a minimum standard of building construction. A house not properly built is far better not built at all. Surely a scheme of this sort should have the support of the general public and also of builders and supply men.

Our annual Vacant House Survey, taken in December, showed 450 vacant houses. This included, however, 68 new and unfinished dwellings. This figure represents only 1.1% of all dwellings in the city, a very small proportion of the 30,520 total dwellings. It is, however, an increase of about 120 over 1921. Seventy-eight of these houss have been empty from one to five years. A great many old and dilapidated houses have been renovated and put into use during the last three or four years, so that very little more can be done in this direction.

There are rather more suites in apartment blocks to let than usual, but these are apparently not available to the hundreds of families now crowded together in one-family dwellings because these families cannot afford the rents asked.

We are of opinion, therefore, that notwithstanding the good work done by the Housing Commission, and the increasing number of houses built, that the housing situation is just as bad as ever. The conditions noted in the Department's Housing Surveys of 1918 and 1921 are still in existence and are, in fact, even accentuated. Scarcely a week passes but some report comes to hand indicating that this overcrowding of one-family dwellings is increasing. For the class of families living under these conditions nothing is being done. Under the conditions on which loan companies lend money—50% of the total value of house and lot—these people have not a chance of ever getting a house of their own. Even under the Housing Commission scheme, where 85% of the total value is advanced, they are not able to become home-owners. Nobody is building houses to rent. The Department cannot take any general action against the present undesirable and illegal occupation of single-family dwellings as tenements, for if notices were served on the owners many would not spend any money in trying to alter these dwellings by properly fitting them up for two or three-family use, so that the final recourse would be the closing up of the houses, and there is nowhere for the unfortunate tenants to go, except into similar houses. In many of these houses the tenants do not even own the furniture. They have a stopping-place, but not a home. The owners rent the whole house as a rule, and the lessee does the sub-letting. There is a very large class of people now making a living in this way, and some of them operate several houses. Others, seeing their success, are tempted either to make a living or to reduce their expenses by sub-letting a part of their houses. They commence by taking in one extra family, and afterwards the number is increased to 3, 4, 5, or even more families, each occupying one or two rooms, and the lessee's own family is frequently crowded into one room. These conditions are not desirable in any city. They are particularly not wanted in a new and young city like Winnipeg. Because these conditions are out of sight they are also, to a large extent, out of mind, but eventually they must be dealt with.

The only suggestions we have to offer are as follows:—

1. That the work of the Housing Commission should be extended and not diminished.
2. That the Building By-law be amended so as to permit of the construction of semi-modern houses. We have stated before that such houses can be built to specifications requiring good materials and con-

struction. A big saving can be made by omitting full basements and furnaces. Terraces of semi-modern construction might be so well built as to prove a good investment. The kind of houses we have in mind are 3, 4, and 5-roomed houses, something much cheaper and smaller than the Housing Commission houses. When one thinks of the hundreds of families in this city now living in one room each, we feel sure that if small, warmly built cottages were to be had they would be snapped up like hot cakes. These people cannot afford to buy or rent a 6 or 7-roomed modern house and maintain a furnace. If they do so under present conditions, they will always sub-let. We should like to see the Housing Commission build a few houses of this type as an experiment. To permit of this the Building By-law would require to be amended by allowing the construction of semi-modern houses within much larger areas of the city than at present. The first and second class fire-limits, as at present constituted, only permit semi-modern houses to be built in the extreme outskirts of the city. The main purpose of a Fire Limit By-law is to lessen the fire risk by requiring the use of fire resisting materials, but under the present by-law frame dwellings are permitted in the first class fire limits if fully modern. We submit that a frame dwelling semi-modern is not any more a fire risk than a frame dwelling fully modern. We submit that this recommendation does not conflict with our former suggestion that the Housing Commission specifications be adopted for the whole city. It would mean, of course, the drawing up of another set of specifications for semi-modern houses, but in each case the houses would be of good material and well constructed. It may be that if semi-modern buidings are encouraged a number may be built for rental.

3. We repeat the suggestion of last year that it might be well to make a start in endeavoring to compel the owners of single-family dwellings at present occupied as tenements, to either proceed to make such improvements in such houses as would make them better adapted for use by more than one family, or else to restore them again to occupation by one family only. Before attempting this we should require an amendment to the tenement sections of the Building By-law exempting such houses from the present requirements respecting tenements and giving powers to the Health Officer to require such improvements as can be made, including fewer families, more plumbing fixtures, better lighting and ventilation, protection from fire, etc. Which is better—to lower our present high standard for tenements as regards this class of building and secure thereby a vast improvement in the same, or to continue to allow them to be occupied as at present without improvements? In deciding this question it should be remembered that many of these houses are too large for one family and will never again be occupied by one family only, and also that these illegal conversions are going on almost daily, until this class of house constitutes a menace to the community.

Zoning

Some interest has been awakened in Winnipeg on this subject, which has an important bearing on the health of the community. Cities are now waking up to the fact that owing to the lack of proper laws protecting residence districts from the encroachments of business interests whole districts are spoiled and the property owners put to great loss. A zoning by-law is intended to so regulate the building up of a city that the rights of individuals in property may not be adversely affected by the erection of buildings or the establishment of certain trades or businesses in districts not appropriate for such use. In Winnipeg such protection is only given piecemeal and on request of property owners on certain streets for alignment by-laws, the prohibition

of apartment blocks, public garages, etc. A comprehensive Zoning By-law would be vastly more effective. The Health Department is interested in the kind of buildings erected in a city, the locality in which they are erected, and the uses to which they are put after erection. It is to the Health Department that ratepayers come when they find themselves adversely affected by the blocking up of their windows, or nuisances caused by dirt, dust, noise, noxious fumes, odors, or smoke. Many such nuisances or conditions inimical to the health or comfort of individuals are directly due to the establishment of trades or businesses in residential districts. Similarly when slum districts have been created owing to the lack of proper regulation of the growth of a city, it is on the Health Department that the care of the slum districts falls. We hope that this question will not be lost sight of. A moving picture film entitled "Growing Pains," which illustrates vividly the evils of a want of zoning, is now to be loaned on easy terms. It might be well to arrange for the showing of this film in Winnipeg. As zoning is a part of City Planning and affects many interests, the preparation of a zoning by-law would necessitate the co-operation with the City Council of other bodies, such as the Board of Trade, the Real Estate Exchange, etc., in order that the various conflicting interests may be equitably dealt with.

Gas Stoves and Fittings

In connection with the manner in which large numbers of single-family dwellings are at the present time occupied as duplex dwellings or as tenements, one of the most objectionable features is the large number of gas stoves installed. It is quite common to find 4 or 5 gas stoves installed in one house, and we know of one house at least where there are 17 gas cooking stoves installed. In the house in question there are 23 rooms and 20 families. Only 2 families have more than one room, so that the gas stove in the case of 18 of these families is set up in a room used for cooking, living, and sleeping. Nothwithstanding that the Building By-law requires all gas stoves to be provided with hoods or pipes connected to a chimney, it is found quite impracticable to connect a large number of gas stoves in one house to any chimney, and even if such were attempted, the number of stoves connected and the numerous bends in the pipes would render such venting useless. It would be very desirable in such houses, and a great improvement from a sanitary point of view, if electric stoves were installed instead of gas stoves. Occasionally we find gas water heaters installed without any pipes connected to a flue, and these are vastly more dangerous than are cook stoves.

The principal objections to the use of gas stoves as found in Winnipeg may be summarized as follows:—

1. Gas stoves and piping are installed without any permit and without the knowledge of any of the City Departments. Apparently any Tom, Dick, or Harry may do this work and in any style which may seem good to them. There is no by-law regulating the same.
2. The ease and cheapness with which gas stoves are installed lends itself very well to the purposes of the persons who sub-let portions of their houses to other families. These people would not think of making structural alterations or installing extra plumbing fixtures on account of the expense. They find it much easier to rent their rooms, however, when gas stoves are installed. They are apparently willing that five or six families should use one common water closet and do without any sinks, but must have the gas stoves in order to rent the rooms.
3. Gas stoves badly installed, sometimes with rubber tubing, or old and defective stoves. This leads to an escape of unconsumed illuminating gas, which, needless to say, is extremely injurious to breathe.

4. Gas stoves installed without hoods or pipes connected to chimneys, and thus without any means of removing from the rooms the products of combustion. These products consist mainly of carbonic acid and water vapor. As the stoves are frequently installed in small rooms and rooms used as bedrooms, the atmosphere of such rooms is of necessity vitiated by the removal of oxygen from the air and the addition of carbonic acid. The extent of the vitiation depends, of course, on the size of the room, the means provided for ventilating such room, and the use made of the means of ventilating by the occupants. If unconsumed gas is escaping, so much the worse. There is also the possibility of generating a much more dangerous gas than carbonic acid, viz., carbon monoxide, an odorless gas dangerous even in small quantities. If a large vessel containing cold water, such as a washboiler, is placed on an open gas stove close to the flame, the cooling effect of the large body of water on the gas rings and flame is liable to result in incomplete combustion and the generation of carbon monoxide. In the case of some gas heaters carbon is found on the coils, and we get the same result. There are numerous cases on record of persons asphyxiated or killed by carbon monoxide in small bathrooms equipped with gas water heaters. There have been several instances lately in other cities. Quite frequently we find tenants in cold rooms using the gas cooking stoves to try to heat the rooms.

5. The multiplication of these conditions in several rooms of a house adds to the danger. When only one gas stove is set up unvented, or is defective, it is bad enough, but where a gas stove is found in nearly every room in a house the conditions are anything but healthy for the occupants and, if certain conditions are present, may be even dangerous. Especially is this the case during the winter, when the windows and doors are for the most part kept closed and storm sashes are tightly fastened on.

We, therefore, suggest:—

1. That there should be a City By-law regulating the installation of gas fixtures and fittings. This work should be done by competent men only, and never without a permit.

   If a permit were required in each case, not so many gas stoves would be installed in unsuitable premises, because the Health Department would then become aware of the intention of the householder in many cases to sub-let his premises to numerous families, and thus add to the already bad housing conditions. In such cases permits might be refused.

2. The Building By-law, Section 425, is defective in that it only requires that "all gas stoves, whether used for cooking or heating, shall be provided with metal hoods or pipes for carrying off the products of combustion and the odors of cooking, and the ventilating pipe of such gas fixtures shall be connected either into ordinary chimneys or into flues as above described."

   The "joker" lies in the words "hoods or pipes." Quite frequently the oven part of a gas stove has a pipe connection, but the burners on top of the stove are open and have no hood connected to a pipe and flue. The by-law should be amended to read "hoods and pipes."

   If nothing is done towards the better regulating of gas stoves, we may one of these days hear of some fatal accident. But, accident or not, the most important point to remember is that thousands of tenants are compelled to live in rooms with an atmosphere constantly vitiated by the products of combustion from gas stoves. It may not be possible to pick out these people and demonstrate that they are

suffering from any specific disease due to this cause, but common sense should tell us that the effects of living in such an atmosphere is to gradually undermine their constitutions and to lessen their resistance to disease. Especially is this true of women and young children confined to one room during most of the winter.

3. As previously stated, when it is necessary to provide a number of cooking stoves in a house, and where, owing to the lay-out of the house and lack of sufficient chimneys, it is impossible to properly vent gas stoves, the use of electric stoves would be preferable.

Trades, Manufactories, Office Buildings, Etc.

We made 481 inspections of workshops and factories and 71 of offices. This does not include laundries, which are treated of separately. The large factories are mostly left to the Provincial Bureau of Labor, but we get a number of complaints regarding insanitary conditions in small workshops, including tailor shops, garages, machine shops, foundries, welding plants, tanneries, etc. Sometimes very unsuitable buildings are selected for starting small businesses, and we find a lack of sanitary conveniences, lack of adequate ventilation, poor lighting, etc. In office bulidings the complaint is generally of poor ventilation or lack of adequate sanitary conveniences for the sexes. Under the amended regulations of the Provincial Board of Health the Health Officer is now responsible for inspecting all cellars and basements where any business of a public character is carried on. We frequently find such basements occupied without permission of the Health Officer. The former regulations required adequate natural light in such basements. The new regulations permit occupation of basements without natural light, providing that adequate artificial light and a mechanical system of ventilation are installed. I am of opinion that this is a retrograde step. Man was never intended to carry on his work by artificial light only. The beneficial effects of sunlight and ordinary daylight are of great importance in preserving the human body in a good state of health. In certain callings, such as that of a miner or a stoker in a vessel, it may be necessary for the common good for some men to work by artificial light only, but under ordinary circumstances for all other workers it should be possible to provide that all workshops shall be provided with adequate natural light. There is a growing tendency to utilize every inch of space in buildings, even to the extent of utilizing cellars entirely below ground level. On those compelled to work under such conditions the evil effects may not appear very quickly, but will surely manifest themselves if they continue to work in such premises long enough.

Rats

During the year 78 complaints were received regarding rat-infested buildings. Bounty at the rate of five cents each was paid on 3,833 tails at a cost of $191.65. Mr. Ben Bloom, representing the Allen Theatres Limited, in returning the film entitled "The Rat Menace" certifies that it was shown before at least 50,000 people. He promises the full co-operation of the interests he represents. He further suggests as follows:—

"When you have another film along the lines of the "Rat Menace" that you arrange with some theatre to give a Saturday morning performance. We would be pleased to give our theatre for a cause like this, free from all expenses. Each child should be given a ticket from every school class to admit them free to view the film. The film should be shown in conjunction with a couple of children's comedies, which would make the show, besides educational, entertaining as well. The performance should open up with this film and at the end of the performance it should be shown a second time, so as to instil and get the interest of every boy and girl in cleanliness and health for the good of the city.

"Following a few days after the performance every teacher should be made to address the children along the lines shown in the film."

The rat by-law was before your Committee all last year, but was not forwarded to Council.

Only a few people, comparatively speaking, show any interest in the rat destruction problem. One large wholesale firm engaged a professional rat-catcher and made a thorough clearance from their buildings of both rats and mice, which had been very troublesome.

There were 1,576 applications for a supply of rat poison, which is supplied free by the Department, and 2024 boxes were distributed (over 500 more than last year).

Analyzing this distribution we find as follows:

For use in dwellings, including hotels and apartment houses	1,049	applications
For use in stores, warehouses, offices, etc.	252	"
For use in stables and sheds	102	"
For use in poultry houses and runs	75	"
For use in yards	83	"
For use in public institutions	15	"
	1,576	"

Including 9 applications for use in Municipal Buildings, Ward 1 got 16.9%, Ward 2 got 32.1%, Ward 3 got 51%.

Some buildings, especially stables, are badly infested. One of our inspectors counted over 60 rats in one stable in a few moments. The rats ran all around him as he stood perfectly still. When another old stable was torn down on Gladstone Street 75 rats were caught by dogs in one hour. The bodies were brought to the Health Office as evidence.

Wiping Rags

Only one complaint was received of non-compliance with the regulations of the Provincial Board of Health. In this case there was nothing wrong with the rags (which were imported), but only with the marking of the bales. So far as we know the dealers are all observing the law and are supplying rags properly sterilized and marked.

Public Baths and Comfort Stations

These are inspected monthly and reported to your Committee. Inspections of baths, 95. Samples of swimming pool water taken and submitted for bacteriological examination, 114. The inspections showed the sanitary condition of the baths to be good. Two hundred and eighteen inspections of the Public Comfort Stations were made, and the reports uniformly show that the stations and all plumbing fixtures and equipment are clean and well kept.

Maternity and Infants' Homes — Private Hospitals

As pointed out in my last report, the new regulations of the Provincial Board of Health give full jurisdiction to the Board in the matter of inspecting and regulating Maternity and Infants' Homes. Also the registration and issuing of permits. As the Public Health Act itself was not amended, however, Health Officers are still technically liable for this work. In order to remove any misapprehension and to avoid dual inspections and registration, the Provincial Board passed a resolution to the effect that until the Sections 327 to 339 of the Public Health Act are repealed no action need be taken by the Health Officer under the sections referred to, as the matters referred to therein would be dealt with entirely by the Provincial Board.

Since that date (April 19th), therefore, we have left the matter of inspection and registration to the officers of the Board. As regards Maternity Homes, however, they are classified under the City License By-law as Private Hospitals, for which an annual license must be paid. Before a license is issued the applicant has to obtain from the Health Officer a certificate that the premises are suitable and satisfactory for the purpose. Consequently, for this reason only, we inspect such premises on application being made for license. Other Private Hospitals (non-maternity) are also inspected once a year or on complaint. During the year 23 inspections were made of Maternity Homes and 13 of other private hospitals. There are 12 Private Hospitals on the register, 9 of which are Maternity Hospitals.

Common Drinking Cups and Common Towels

There were 65 notices served for violations of the Regulations of the Provincial Board of Health respecting the use of common drinking cups and common towels.

Chimneys and Furnaces

Eighty defective chimneys were reported and 78 defective furnaces. Many furnaces are used for years without repairs. The pipes and casings rust into holes. The fire pots frequently develop cracks and even large fractures. The joints become loose. The effect—especially with hot-air furnaces —is to permit gases and smoke to escape from the combustion chamber into the hot-air chamber and thence through the pipes and registers into the rooms. Now that so much soft coal is used, the pipes and furnace flues and chimneys become choked with soot much more rapidly than with the use of hard coal. The effect is dangerous and unhealthy. Quite recently a doctor reported to us a house from which he had just returned after attending persons who had been overcome by gases from a defective furnace. There are many more houses in Winnipeg with furnaces installed than in the earlier years of the City's history. A great many of the furnaces are now getting old and worn. There seems to be made no systematic house-to-house periodical inspection of furnaces. Many owners neglect this duty and permit their furnaces and pipes to get into a dangerous condition. From the point of view of danger from fire, inspections should be made by the Building or Fire Departments; but when, by reason of these defective furnaces, the health of the occupants of the building is threatened, the Health Department must take action whenever complaints are made.

Pool Rooms

Eighty-eight permits were issued, as against 87 last year, and 425 inspections of pool rooms were made, as against 402 in 1921.

Second-hand Dealers and Junk Yards

Permits issued, 159. Inspections made, 513. The provision in the by-law requiring all applicants for license to get a certificate from the Health Officer enables us to see that every spring all these places are cleaned up and the plumbing put in good repair. In winter we have some trouble in getting the occupants of second-hand stores to provide sufficient heat at all times to prevent the plumbing from freezing.

Vermin

Bed bugs were reported in 126 dwellings and cockroaches in 35. There were fewer complaints than in 1921, but some very dirty places were found.

The draft by law respecting vermin was before the Health Committee all last year, but has not yet been sent to Council. We need this by-law if it is desired to improve conditions in the hundreds of vermin infested buildings in the city. There were few complaints regarding lice.

Barber Shops

Inspections made, 128. There were few complaints regarding barber shops.

Theatres and Places of Amusement

Only 23 inspections were made and no complaints were received.

Schools and Public Buildings

Only 70 inspections were made. Some of the private schools are still overcrowded.

Laundries

Inspections, hand laundries, 815; steam laundries, 61; total, 876. Permits issued, 125. Eight applications were made for permission to establish new laundries. Three of these were approved by Council, three were abandoned because the applicants could not secure the necessary number of signatures, and two applications are still pending.

Hotels and Lodging Houses

Inspections made, 393. Number of hotel permits issued, 60. The hotel licenses expire April 30th in each year. All hotels are inspected from top to bottom in February and March, and notices served on the proprietors to execute all work necessary to put the premises in a thoroughly clean and sanitary condition before the Health Officer's permit for renewal of license is issued.

Smoke Prevention

The work done in this connection is more fully set forth in the report of Inspector Pickering. In general, however, it may be said that a good deal of success has been attained by his efforts. One or two smoke nuisances of long standing have been abated. These were at public institutions, where lack of funds prevented the installation of smoke-preventing apparatus without seriously crippling the institutions.

The problem of abating smoke nuisances without unduly handicapping industries demands considerable tact and technical ability. A smoke inspector is really a combustion engineer. He must have a thorough knowledge of all the numerous fuels on the market, their heat-producing possibilities, the amount of smoke likely to be evolved in their use, the ash content, etc. Then he must have a knowledge of the proper methods of using the various fuels, for smoke nuisances can frequently be prevented by proper methods of firing. He must also have a knowledge of the various kinds of smoke-preventing machinery on the market, the kind of plants for which they are best adapted, and the proper construction and setting of boilers, flues and chimneys. Such a man is in a position to advise with the owners of plants and to show them how best to prevent objectionable smoke. Frequently this can be done by changing to a more suitable fuel or by more judicious and scientific firing. In other plants some kind of smoke-preventing or consuming apparatus is necessary. Incidentally the service provided is, therefore, for the benefit of the individual plant owners, although the citizens at large reap the benefit in a cleaner and purer atmosphere. This work, during the last

few years at all events, has been entirely accomplished by educational methods rather than by the big stick. It may become necessary, however, to deal a little more stringently with those who do not see fit to co-operate, and it might also be well to make a further effort to control the smoke from locomotives, which are responsible for a very large proportion of the objectionable smoke polluting the atmosphere. Under the Public Health Act we have no jurisdiction over smoke from locomotive engines, and apparently the only body which has such jurisdiction is the Railway Commission of Canada. An application was made to the Commission in 1913 for an order to the Railway Companies (C.P.R. and C.N.R.) to adopt such measures and provide such equipment to their engines as would prevent the emission of objectionable smoke. The matter was referred by the Commission to their engineer for report. Subsequent annual reports of Inspector Thornley, former Smoke Inspector, show that some progress was made in this work, but a great deal yet remains to be done.

Insanitary Buildings

The table given below shows the class and number of premises for which notices were served upon owners and occupiers under Section 103 of the Public Health Act, under which section the Health Officer has power to require that premises be put into a proper sanitary condition or else closed up:—

Dwelling houses, general insanitary conditions	41
Dwelling houses, unlawful conversion of same to duplex dwellings	2
Dwelling houses, unlawful conversion of same to tenements	22
Tenement houses	2
Basement and cellar dwellings	9
Dark rooms (dwellings)	2
Factories and workshops	24
Stores, unlawful occupation as dwellings	23
Stables	49
	174
Notices served upon owners and agents	173
Notices served upon occupants	129

Results

Notices complied with (premises put into sanitary condition)	78
Premises closed and placarded	81
Cases still pending	15
	174
Premises remaining closed at December 31st, 1921	253
Premises repaired or demolished during 1922	69
	184
Premises closed during 1922 (dwellings, 28; stables, 39; other premises, 14)	81
Remaining closed on December 31st, 1922	265

Note—Of the 28 dwellings closed, 6 were cellar dwellings, the balance being closed mostly on account of lack of plumbing and defective plumbing. Of the 14 other premises, 9 were stores illegally occupied as dwellings.

Work Done for Other Divisions

Some 26 cases were dealt with for the Division of Communicable Diseases and a few investigations made for the Vital Statistics Division. We also supplied the Dairy Division with a complete list of cow-keepers in the city.

Prosecutions

Only 95 prosecutions were undertaken. This is 24 cases less than in 1921. Twenty of these were for the Food and Dairy Divisions, leaving only 75 prosecutions for the Sanitary Inspectors' Division. As 16,798 notices (informal and statutory) were served during the year, it is evident that most notices were complied with by the recipients. In a good many cases, however, in order to avoid prosecutions, we have to serve a second notice.

Prosecutions for 1922

Nature of Charges

Nuisance on premises	21
Contractors' closets, defective or lack of	18
Neglect to comply with notice of Health Officer	8
Cow stable too close to dwelling	7
Occupy insanitary premises without permission of Health Officer	7
Deposit refuse or manure	5
Neglect to properly construct, drain and ventilate stable	5
Garbage and swill removed in leaky wagon	3
Obstruction of Sanitary Constables	1
Food prosecutions	16
Dairy prosecutions	4
Total	95

How Disposed of	Cases	Fines
Convicted and reprimanded	5	
Cases withdrawn	4	
Cases dismissed	2	
$ 3.00	32	$ 96.00
4.00	2	8.00
5.00	10	50.00
6.00	1	6.00
8.00	11	88.00
10.00	4	40.00
13.00	18	234.00
15.00	2	30.00
18.00	1	18.00
28.00	3	84.00
Total	95	$654.00

General

I cannot close this report without referring to the retirement of Mr. J. H. Pearson, which took place on September 30th, on which date he completed twenty-five years' service as Chief Health Inspector. During the whole of this period I served with him in the capacity of assistant, so that I know something of his dynamic force of character and his faculty for imparting his enthusiasm to his subordinates. Mr. Pearson always placed the interest of the City first, and conserved the monies of the ratepayers as carefully as, or even more so than, his own. His sterling worth as a man, as one of the pioneer citizens of Winnipeg, and as Chief Health Inspector will be long remembered.

The inspectors of this Division have displayed much energy in carrying out their duties. Any extra calls for service have been cheerfully responded to.

Yours obediently,

ERNEST W. J. HAGUE,

Chief Health Inspector.

REPORT OF SMOKE INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Sir:—

I respectfully submit herewith my report on smoke nuisances and their abatement for the year 1922.

Smoke Inspections

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Observations—Chimneys and Smoke Stacks	57	14	14	15	23	17	37	13	27	37	52	61	367
Inspections of Furnaces, Boilers, Fuel, etc.	86	89	73	58	76	67	61	34	76	81	93	81	875
Total	143	103	87	73	99	84	98	47	103	118	145	142	1242
Notices—Statutory	2	.....	.....	.....	2	1	2	5	4	2	.....	1	19
Notices—Verbal	37	21	23	18	16	10	7	7	13	16	37	31	236
Total	39	21	23	18	18	11	9	12	17	18	37	32	255

The policy of education, rather than prosecution, which has been in vogue during the past few years has been continued, and, judging by the small number of complaints received by the Department, the general public are apparently satisfied with the conditions prevailing.

Personally, I have the opinion that there is room for improvement in smoke conditions at various plants and apartment blocks. I may add, however, that to the best of my ability care has been exercised to obviate as far as possible any cause for complaint from the citizens generally. At the same time, a greater interest by the public in the matter of smoke nuisances would be of great help.

Firing of the boilers in small apartment blocks only occurs at irregular intervals, so that the chances of at once detecting any smoke nuisances are very remote. However, by casually observing the terminals of chimneys, deposits of soot in the vicinity, and keeping track of the wind direction, many nuisances are checked before they actually become an annoyance to the public.

Permission to use one of the highest buildings for general observation has been very helpful, and from this position a comparison between the smoke from buildings and railways is readily observed.

Several instances have occurred during the year where owners of plants adjoining railways were notified to abate smoke nuisances, yet locomotives in the same vicinity created a far greater nuisance than the premises in question.

We have, however, no jurisdiction over locomotive engines.

On the other hand, if the premises situated in such locations were allowed to emit objectionable smoke simply because of the locomotives and lack of legislation respecting the same, other plants situated farther from the railway would be entitled to the same consideration, and so on all over the city.

It is absolutely necessary that legislation be obtained in order to bring locomotives within the act. Further remarks pertaining to railways are made in another part of this report.

It is very satisfactory to note the increase in stoker equipment and special furnaces installed with a view to economy and smoke abatement. Reports from two of such plants show a saving of from fifteen to twenty per cent. in the fuel accounts. The savings reported were not calculations based on comparison with previous years, but were tabulated from steam flow meters which show a definite amount of work done. These are practical illustrations showing that smoke abatement makes for economy.

The economical management of a boiler-room, whether it be in an apartment block or manufacturing premises, is of the greatest importance. It is unfortunate, though, that some owners cannot or will not see the logic of this; nevertheless, hundreds of dollars are absolutely wasted each year in unconsumed fuel.

Lack of economy itself is of little interest to the general public; but when, by reason of this waste of fuel, we find undue fouling of the atmosphere with smoke, the matter becomes of vital interest to citizens.

Questions regarding the comparative values of American and Canadian coal, as regards cost and heat value, have been asked me many times during the past year. Naturally, it is policy to be very guarded in any statement I make, as it may be construed into an unfair favoring of certain coal.

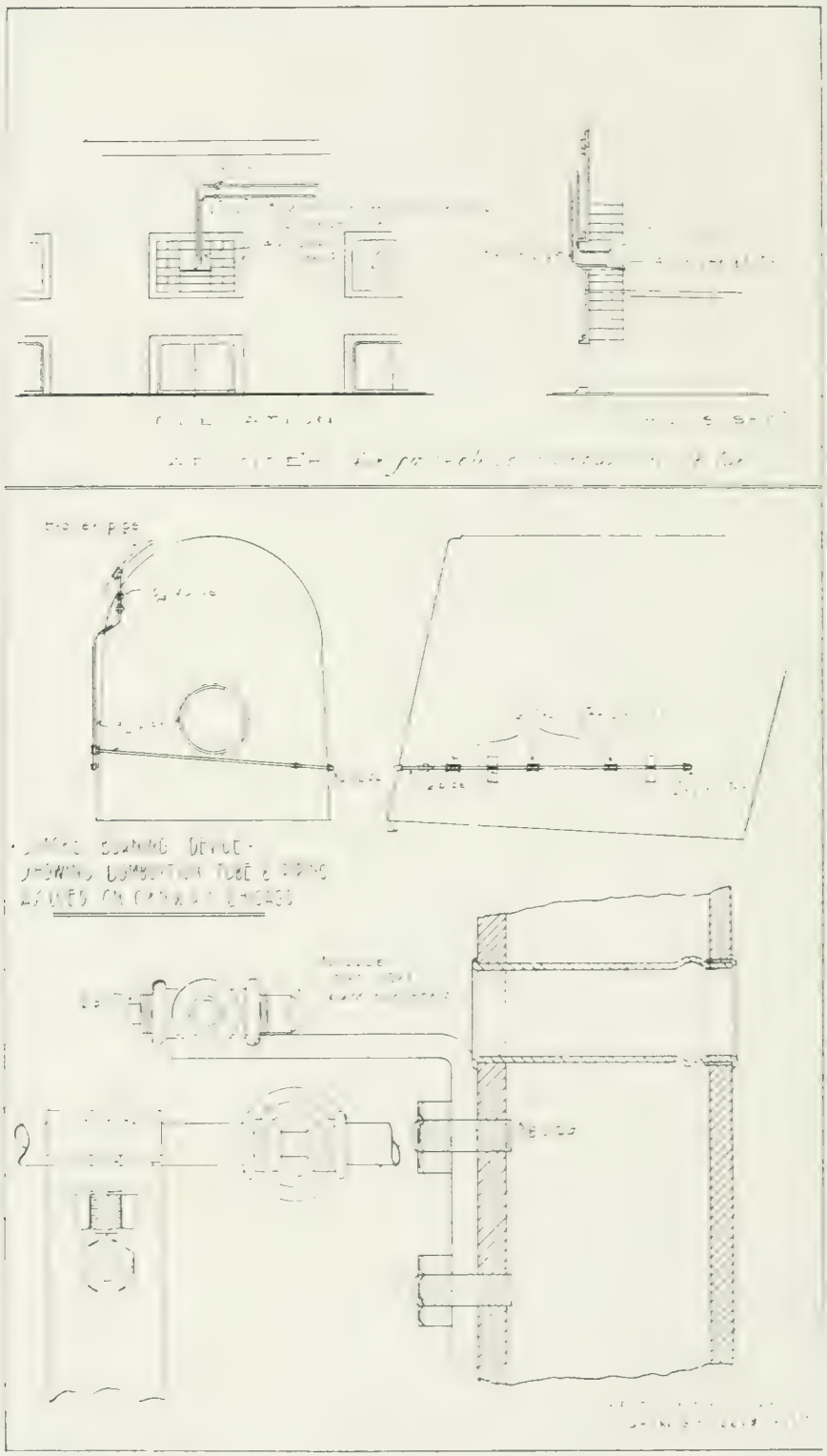
From the consumer's viewpoint, he should first understand that the value of a coal is what he can get out of it. No matter what coal he intends burning, it is necessary, if economy is to be observed, that his boiler installation be in good condition. Narrow air spaces in grate bars are not satisfactory for high ash coals; air leaks reduce the draft and cool the furnace temperature; low boiler settings are not suitable for high volatile coals; adequate draft is necessary; undue overloading is not economy; and regular attention to prevent the retention of carbon on the heating surface of the boiler is required. If the foregoing points are attended to, and the fireman is acquainted with the elementary principles of combustion, economical results will follow and the emission of objectionable smoke eliminated.

It cannot be expected, however, that hand-fired boilers shall be as efficient as a good mechanical stoker equipment. I allude, of course, to those plants where there are several boilers carrying a good average load.

I append herewith a list of smoke-preventing equipment at present installed:—

	Boilers
Jones (Standard)	10
Chain Grates (Babcock-Christy-Green, Illinois)	23
Roney's	12
Ailan	4
Murphy's	6
Coking Ovens	8
Total	63

An atomizer was installed at the Gas Works, Gladstone Street, for the purpose of utilizing tar as a fuel. Formerly the tar was mixed with coke breeze and hand-fired. This resulted in the emission of dense black smoke at varying periods throughout the day. The present atomizer, as shown in sketch, has proved very effective.



There is not the slightest doubt that a considerable saving could be effected in the central districts by a mutual arrangement between the owners of the larger heating plants and owners of smaller premises adjoining for the supply of steam for heating purposes.

Such an arrangement would also minimize smoke conditions.

Although such premises may not emit a smoke of objectionable density (dense grey or black), the combined volume of even light smoke in an atmosphere having a relatively high humidity produces aggravating conditions and at times becomes a nuisance to the general public. The fact that the majority of buildings have low chimneys is responsible for the general diffusion of light smoke at a low altitude.

We have, on several occasions during the year, had to insist on certain chimneys being increased in height and more suitable fuel used where conditions were such that a nuisance was continually created.

Apartment block owners should take more interest in the matter of fuel economy than at present.

In several instances nuisances were created by the use of high volatile coals, rich in the heavier hydro-carbons and of American origin.

The fuel in each instance was changed, but in one instance deposits of soot in the neighbourhood still continued until the chimney, breeching and flues were thoroughly cleaned. From an efficiency viewpoint it is absolutely of no use trying to utilize such coal under a low boiler setting.

It is very satisfactory to note that the plant hitherto responsible for the worst smoke nuisance has installed a mechanical stoker equipment with very satisfactory results.

Fuel—Coal

The domestic market has again been satisfied with the sub-bituminous coals of Alberta, anthracite, coke and wood.

Lignite coal from Saskatchewan appears to have had a much better sale than hitherto, and several of the larger consumers report very satisfactory results. The cost, however, of our Western coal is apparently preventing a much larger sale.

It is to be hoped that more interest will be shown by the Dominion Government and railways generally in the natural resources of the West.

Hitherto the West has been considered essentially agricultural. This may have been true at one period of its history; but now that its mineral resources are known, one naturally draws the conclusion that there is insufficient interest taken in its development.

There is a large market for coal in Canada. Is it absolutely impossible, then, to devise some means whereby the mines of Western Canada shall be developed to the utmost extent, thus keeping the money in the country?

If the railways reduced the cost of transportation even to actual cost, would it not eventually lead to increased general freight traffic, due to the retention of thousands of dollars in the West and the resultant increase of population?

It is not always policy for a business house to wait for orders, especially at this period. A good business organization seeks trade and expansion. A subsidy to the railways, based on tonnage, in order to encourage the use of the mineral resources of the West, would be of more importance to the community and business houses generally than the providing of a subsidy to the steamship companies for immigrants.

Surely, if the latter is of national importance, then it only logic to expect that interest in the economic development of the West, with a resultant demand for labor, is of national importance also.

If a person considers it necessary to purchase an automobile or truck for business purposes, he does not leave it in a garage and forget about it, except when he pays periodical garage charges!

Instead, he encourages trade and does what he can to provide work for it, so that instead of it becoming an added expense and, incidentally, a machine lacking its original polish and smooth running machinery, it daily becomes an asset to his trade.

So with unemployment. The utilization of our coal resources means more work, cheaper coal, and more money for the Dominion generally.

Wood

Large quantities of wood have been consumed in the smaller business establishments and dwellings.

Although dense gray or black smoke is not emitted from this fuel, several complaints were received.

In one instance the odor and volume of smoke from a low chimney gained access through the windows of a higher building adjoining.

By changing the fuel to one of high carbon content the nuisance was remedied to the satisfaction of both parties.

Powdered Coal

Although it was anticipated that powdered coal would be placed on the Winnipeg market during the past year, practical development has not taken place.

Briquettes

The general public are still awaiting practical results from the Province's investment in the manufacture of briquettes from lignite coal.

Hot Air Furnaces

There has been a considerable increase in the number of complaints received from both occupants and owners of dwellings respecting nuisances caused by the gaseous products of combustion gaining access to the various rooms. No doubt, as furnace installations become older, there will be a corresponding increase yearly.

The defects found are generally cracked fire-pots, defective joints in the fire-pot or radiation flue, corroded portions of the combustion chamber adjoining the water pan of a certain type furnace, improper smoke pipe connection to the furnace, defective casings and smoke flues, and dangerous position of dampers on smoke pipes. Burnt-out grates and fittings are also a source of trouble, as in such instances the furnace is not used, resulting in partial heating of the premises by a small heater and subsequent freezing of the plumbing.

Leakages of the gases of combustion into the hot air chamber are of much importance due to the presence of carbon monoxide, which is formed by the incomplete combustion of the carbon content in the fuel.

In ninety per cent. of such furnace installations there is incomplete combustion of the coal, especially during the night period. Fires are banked, the temperature of the furnace is low, and there is no air mixing. Checks are opened and dampers closed in order to reduce the draft over the fire.

These conditions cause a tension of the distilled gases, which gradually pass through defects in the fire-pot or radiation flue into the hot air chamber of the furnace and thence into the rooms by way of the registers.

There is no doubt scores of people suffer from the effect of inhaling these fumes, but, through either ignorance of the danger or indifference, take no steps to remedy same.

Defective casings and cold air ducts have also their quota of nuisances; so also have defective smoke pipes.

A defective smoke pipe, coupled with a soot begrimed interior, is a fire hazard, a danger to the health of the occupants of such premises, and a fuel waster.

Neglect in cleaning of smoke pipes and chimenys will eventually result in the smoke gaining access to the cellar air, thence through defective casing or cold air ducts into the hot air chamber.

It must be remembered also that conditions in all cellars are not exactly sanitary, especially during the winter, and when one considers the fact that this air is heated and admitted through the registers, together with particles of both organic and inorganic matter, it is astonishing to note that many owners neglect to make the necessary repairs until the tenant is compelled to complain to this Department.

In many instances dampers are placed on the smoke pipe between the chimney and the check. At certain periods the check is opened and smoke pipe damper partially closed, but the volume of smoke from the furnace is too large to pass the partially closed damper, and eventually the smoke gains access to the interior of the premises by way of the check.

If a damper is used in addition to the check on a smoke pipe, it should be installed between the furnace and check.

Much more could be said relative to nuisances caused by defects, apart from lack of economical conditions, as affecting both owner and tenant.

Inadequate volume of cold air supply is mostly in evidence, especially in the older type of installations.

The heat radiated and conducted from the heating surfaces of a furnace to the air heating chamber is in ratio to the volume, velocity, humidity, and difference in temperature of the air to be heated.

Therefore, if there is a lack in volume of cold air (taking into account the relative humidity also), there is a tendency to increase the furnace temperature by adding more fuel. This ultimately results in destroying the fire-pot and warping the top and bottom plates in the radiation flues of certain furnaces, causing gas and dust leakages.

Carelessness in non-removal of hot ashes from below the grates is a great factor in reducing the draft and destroying the grates.

The nuisances referred to often cause considerable trouble to the Department, as very often frozen plumbing is combined with furnace defects.

We always take the stand, however, that if a furnace is so dilapidated that it cannot or is unsafe to be used, the responsibility rests with the owner.

Locomotives

I am of the opinion that authority by the City should be obtained respecting the smoke abatement on locomotives.

Although the Railway Commission, during 1913, ordered brick arches to be installed on locomotives, we still remain without any legislation.

True, brick arches were installed in practically all locomotives, but, irrespective of any order from the Commission, such arches were being installed at that time as a matter of economy.

There is no more reason for a locomotive to emit objectionable smoke within the City Limits than there is from any stationary boiler.

In all cases, smoke abatement and economy go hand in hand. If intelligent steps are taken to obtain the former, you obtain the latter also.

In dealing with this subject, we may consider it under the following heading:—

Roundhouses
Yard or Switch Engines
Road Operation

The two former are admittedly the most important as affecting the citizens.

Roundhouses—

Due to the rebuilding and cleaning of fires of numbers of locomotives confined to a small area, a large volume of dense smoke is apt to be produced.

In order that objectionable smoke be prevented, it is necessary that every engine be equipped with smoke-preventing devices, viz.:—

A fire brick arch in the fire-box, which should be properly constructed and maintained in good repair.

Combustion tubes in the fire-box sufficiently large to admit an adequate volume of air to promote complete combustion of the distilled volatile matter from the coal.

Steam jets in connection with the above.

Two blowers in front end of locomotives. Each blower connected with not less than one and a quarter inch pipe to the fountain. A connection between the blower pipe and steam jet line should be made in such a manner that steam will be admitted through the jets from the engine-house blower lines.

A few notes on the above devices will not be out of place.

The brick arch, properly maintained, has already proved itself to be a factor in preventing smoke under certain rates of combustion and an efficient device in economical consumption of fuel.

Combustion tubes in general use are situated at the sides of the fire-box. The number depends on the length of such fire-box, averaging from four to six on each side. These tubes are generally two inches in diameter.

The steam jet nozzles in connection with the above are arranged so as to inject a maximum volume of air with a minimum volume of steam.

It has been definitely established that, with the above equipment and ordinary care on the part of the fireman, smoke can be abated on a locomotive at all times.

It is reasonable to expect that firing up a cold fire-box is the most difficult one from a smoke viewpoint.

Experiments on various railroads show that even this is possible without generating undue smoke.

During these demonstrations the grate area was covered with a layer of coal, four to six inches thick. One cubic foot of oil-saturated shavings were placed in each back corner of the fire-box. These were ignited, the fire gradually spreading forward towards the front of the fire-box.

It is claimed that a number of tests show conclusively that, with the aid of a strong house blower and steam jets, locomotives can be fired up smokelessly.

A device for eliminating objectionable smoke from roundhouses was installed by the New York Central Railroad some time ago.

The apparatus consists of a duct made from asbestos board placed under the roof of the roundhouse. To the duct is connected the jacks, which are also made from asbestos board and so arranged that air-tight joints can be made with the engine smoke stack. Two exhaust fans, operated by electric motors, are connected with the duct.

The smoke is exhausted through the duct and discharged into a large tank filled with water, which is heated by steam to practically boiling point.

The smoke, after being forced through the water, contains no suspended carbon.

Switching Service—

Careful and frequent firing, together with proper use of the steam jet, will prevent objectionable smoke.

Whether in switching or road service, the principal factors in smoke elimination are the smoke-preventing devices. Only when human intelligence is used in combination with these devices are they effective. During the past year a yard engine on one of the railways was equipped with steam jets in combination with the already installed combustion tubes and brick arch. Use of the steam jet proved effective in preventing objectionable smoke from this certain engine, but in a few days the fireman ceased to use the device.

I also had an interview with the Chief Mechanical Superintendent of a certain railroad, and asked for the officials' co-operation in smoke abatement from their roundhouse and yards.

I pointed out the fact that, whilst citizens were saddled with a smoke abatement law, the railways were not, although in certain vicinities a far greater nuisance was created by them. The reply was that the conditions from both the economical and nuisance viewpoint were realized, and that attempts had been made to draw up and enforce certain regulations, but owing to unforeseen objections practical enforcement was dropped.

However, a change in fuel to one of Canadian origin was made, and although the average density of smoke emitted from the roundhouse has been reduced, there is still room for improvement.

In concluding, therefore, I would respectfully ask that the necessary legislation be applied for, and that instructions be given to rigidly enforce the provisions of the Public Health Act in reference to smoke abatement generally.

Yours obediently,

P. PICKERING,
Smoke and Supervising Inspector.

REPORT OF THE TENEMENT INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir :—

I beg to submit the following report on tenement inspection and action taken in housing conditions during the year 1922.

We received 314 complaints of nuisances in tenements and apartment blocks, as against 210 complaints in 1921.

Inspections of apartment buildings and tenements numbered 859, as against 1,031 in 1921. The reduced number of inspections is due to a reduction in complaints relating to the storage and removal of garbage, etc. Owners and agents, and caretakers, are becoming aware that the lack of proper care of garbage frequently attracts rats to their premises.

While many of the complaints are found to refer to trivial matters, in many instances matters of a more or less serious nature are brought to our attention.

Lack of sufficient heat is a very real source of complaint during our severe winters. It is seldom that this trouble is found in our modern apartment blocks, for in these the heating plant is usually adequate. It is quite different, however, in our poorer class of tenements and houses converted to tenement use. In the latter case it frequently happens that the heating plant is a hot air furnace operated by the lessee, who lives on the ground floor. In most cases each hot air pipe serves to heat two rooms, and while one room may be easily warmed, the other room may be hard to heat. We often find rooms such as these occupied by families, and it is extremely difficult to maintain the requisite amount of warmth. As a result, some hardship is experienced, especially in the case of young babies.

Complaints of bed-bugs and cockroaches are as frequent as ever, but as yet we have no legislation dealing with this matter. We are therefore obliged to deal with this only on general lines. It is to be noted, however, that property owners are usually ready to comply with our requests, and have such cleaning done and other steps taken as we may suggest. In cases of rented premises we are advocating the removal of wall paper, especially in bedrooms, and the use of paint or kalsomine instead as a means of eradicating bed-bugs.

Housing conditions are not much improved as yet. The small number of dwelling houses built during this year has not improved matters greatly. Meantime, we have a very serious condition through the lack of a sufficient number of small dwellings. Only one or two apartment blocks have been built during the past few years. The only satisfactory relief to our housing shortage would be the construction, on a large scale, of small cottages.

At the present time we are confronted with the problem referred to each year for a number of years—that of the conversion of single family dwellings into tenement use. While this condition is more in evidence in the centre, no part of the city is free from it.

We have been doing our best to educate our citizens in the principles of personal hygiene, child welfare, and the prevention and control of tuberculosis, etc., but much of this good work is being undermined by the housing in unsuitable premises of the class of people who need good housing most.

We are continuing our policy of regulating the "farmed out" house, as far as possible, without closing up entire premises. We are, however, taking action in cases where we find gross insanitary conditions. Attic rooms that are suitable only for storage purposes are often found occupied by families. Many of these rooms, having low, sloping ceilings and only small gable win-

dows, are scarcely satisfactory for bedroom use; but when gas stoves are in use, they are a menace to health. There is also the danger that if fire should occur in such premises, families living in attic rooms would be trapped.

In addition there is the danger of asphyxiation from gas fumes, due to defective and improper connections to gas stoves. Many of these stoves are fitted up by incompetent persons and often the connections are of rubber tubing.

We served closing notices for unlawful conversion of premises to the use of tenement houses in eleven cases only, and in each instance conditions were improved.

In one of the cases above referred to, the owner took out a permit at the office of the Building Inspector to build a one-storey dwelling for one family. He built a two-storey house, having six rooms on the ground floor and five rooms on the second floor. It was evident to us from the layout of the rooms that it was intended to occupy the premises as a tenement. Soon after completion we found four families in occupation. We issued closing notices on the ground of unlawful conversion to a tenement house, lack of adequate plumbing, and general insanitary conditions. The matter had not been disposed of at the end of the year.

As stated in previous reports, most of our work is among the houses illegally occupied as tenements. The number of persons now in this business is increasing. These people rent large houses, furnish same in most cases with second-hand furniture and bedding, which may or may not be free from disease, fit up gas plates and stoves, and rent out one or more rooms to families who are frequently unable to live in better conditions. The lessees of such premises find this a paying business and frequently rent out a number of such houses.

We are of the opinion that the building on a large scale of small dwellings will relieve the above situation, and not until then will we be able to bring pressure to bear on these conditions.

Respectfully submitted,

ALEX. OFFICER,

Tenement and Supervising Inspector.

REPORT OF CHIEF DAIRY INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir :—

I have the honor to submit herewith a report covering the work of the Dairy Division for the year 1922.

It is a recognized fact that conditions influencing the production of milk and all dairy products have a direct effect on our milk supply, while general farming conditions may have an indirect effect, making it essential that we should take cognizance of such conditions by studying and keeping in touch with all matters bearing on rural and commercial economy, in order that our policy may be logical, practical, and constructive, backed by sound judgment and a business-like administration.

The happenings and worries of the year 1922 will long be remembered, not only by the Divisional Staff, but by all those engaged in the distribution of milk, to whom the advent of our new by-law with its somewhat radical changes involving them in a maze of unknown or uncalculated expenditure, the final outcome of which was awaited by many with trepidation, gloomy forebodings, and heart-breaking misgivings.

The time for introducing these changes, however, was undoubtedly well chosen, as the result was to prove. General farming conditions indicated cheaper grain, with an abundance of cheap feed, while store cattle were never so low in price. An all-year-round surplus of milk was practically in sight, with a general clamoring of producers to get on the milk line. The supply of skilled labor for dairy farms was somewhat limited, but this was really the only detriment, and will continue to be a problem so long as the younger people sidetrack this particular kind of employment. Milking necessitates skill, and, like many of the skilled trades, there is a dearth of willing apprentices, consequently the only way of replenishing such shortage would appear to be by a system of selective immigration, unless some more efficient method of weaning the young people away from their desire to participate in city life could be evolved, and this means the offering of such inducements in the shape of home comforts, recreation, and the knowledge that the occupation is interesting and instructive and carries a bright prospect ahead.

Far too few of our farms provide anything approaching these ideals, and as a consequence farm work, such as attending to cattle or milking cows, is looked upon as a drudge; very few are looking for it, while many are ready to get away from it.

Looking Backward

About twenty years ago, during the period of 1900-04, the milk supply of this city was provided by several hundreds of city cow-keepers, each owning from one to four cows, and a few small dairies inside the city limits. One large dairy farm just outside the city accommodated over 200 cows and supplied bottled milk on a limited number of routes. From 1905 to 1909 a decided change took place; many cows were driven away from the central portion of the city, while the dairies were forced to the outskirts and in many cases over the border into the surrounding districts. A small number of milk dealers, other than producers, had come and gone, including one company, however, which, commencing to pasteurize milk about 1905, with a plant handling about 200 gallons per day, has remained in business to the present time, and is now considered one of the largest retail milk firms in Canada.

From 1910 to 1914 a strong campaign for general improvement was initiated. Educative measures were largely used, backed by a lavish use of the Score Card System, in order to indicate progress. This had the effect of causing improvements which, while appearing substantial at that time, did not, however, conform to any definite plan, and had not the support of a practical, up-to date by-law, in order to become permanently effective.

From 1915 to 1918 improvement was at a standstill, and, notwithstanding a lavish issue of licenses under conditions which could not be justified by various new regulations previously proposed, milk shortages appeared and high prices prevailed, while quality was at a low ebb. Thus in 1915 over 100 prosecutions were entered for milk low in quality or adulterated, 30 of such cases occurring in one month. Quoting from the Annual Report of 1918, which, commenting on milk shortage, says: "This was avoided later by putting on the market re-emulsified or re-constituted milk, made from milk powder, butter, and water"—truly a fine state of affairs for a city surrounded by hundreds of miles of fertile land, well adapted for milk production and well stocked with cattle.

The period from 1919 to 1921 may well be named "The Re-Constructive Period," inaugurating a policy which laid the foundations for a real practical advance along certain definite lines; while the year 1922 marks the final attainment of our expectations, featured by the introduction of a modern, up-to-date by-law, a simple standardization of dairy buildings, and the testing of all dairy cattle under federal supervision.

The New Dairy By-law

The old, antiquated by-law passed in 1909, and repealed in 1922, had a somewhat longer existence than was warranted by its face value, and had we not been helped considerably by provisions inserted in the Public Health Act, 1911, and a number of subsidiary by-laws passed spasmodically as special occasions made possible, we would probably have had to throw up our hands. We were in the unenviable position of being intimate with the dangers and abuses concerning the production and handling of a large portion of our milk supply; we knew where the trouble lay and what remedial measures were necessary, and yet were unable to apply same. We tried educative measures, and possibly had a certain amount of success; but the same as in other lines of business, such measures do not meet with a general reponse. The example set by a small number of recalcitrants had a bad effect, while those who attempted to run a good clean dairy with tested cows claimed that financially they were running behind the other fellow, and in this manner were severely handicapped. The old by-law was thus proved to be a hindrance to the progressive dairyman, as well as to us, so that during the reconstructive period previously mentioned it was practically discarded as a matter of policy, and we got along better without it. Even the matter of licenses for the past five years has been dealt with under the enabling clauses of the Public Health Act, while the majority of Police Court cases have been conducted under the same statute.

The use of the Score Card System as a means of classification and indicating conditions on dairy farms commenced in 1909, and with several variations in detail has been in use ever since. The main principles of the score card have, however, been adhered to, including the maximum number of points at 500, which we always felt was necessary, in order that we might have sufficient scope without breaking into fractions. A standard defined by the score card has occasionally been set; thus in 1918 it was decided that no licenses be issued to dairies scoring less than 350 points. This went on for two years, and in 1920 the minimum standard was raised to 375 points. After four years' experience with this method of standardization, it was decided that the end of the rope had been reached, and that no further improvement would be effected along voluntary lines, unless it was something which every-

body would have to do; as, for example, a compulsory tuberculin test, which, if properly carried out, would raise the score of all dairies not previously tested approximately 25 points each. It thus became evident that any scheme of permanent improvement, which did not have the backing of sound regulations, with adequate power to enforce same if necessary, would be bound to fail and could only end in confusion.

Presuming that the new by-law is an ordinance of the first class, then for the purposes of comparison the old by-law could only be considered as belonging to the third class. In this manner we have taken a huge jump and have missed the second class stage altogether, although many of our dairies had in the meantime arrived at a second class condition and a small number had arrived at first, in spite of the general tendency of third class regulations to produce third class results.

The opportunity of consolidating all necessary dairy regulations under the one head proved extremely advantageous, all cumbersome, unwieldly, or overlapping clauses being trimmed down, only the really useful material being retained. In this manner the salient points of what was formerly contained in 190 paragraphs, spread all over the place, was brought up to date by the addition of modern requirements, and the whole forms a small booklet of 64 clauses, containing less words than the old dairy by-law alone.

Material Consolidated	Clauses
Old Dairy By-law (repealed)	50
Bottling By-law (repealed)	10
Waggon Plate By-law (repealed)	6
Automatic Cancellation (repealed)	5
Milk Depot Regulations (special)	19
Dairy Regulations (special)	40
Municipal Tuberculosis Order (federal)	15
Manitoba Health Act (part)	45
Total	190

The new material embodied in the by-law may be noted as follows:—

1. Provides for the tuberculin testing of all dairy cows from which raw milk is sold.
2. Provides for the testing of all citizens' cows.
3. Provides for efficient pasteurization of all other milk and for recording thermostats to be placed on all machines.
4. Provides for the housing of all dairy cows under ideal conditions in regard to health and comfort.
5. Provides that where cows are kept in the city, certain sanitary rules must be complied with.

The superior advantage displayed by the provisions of the new by-law over other regulations is best illustrated by those clauses dealing with the housing, health, and comfort of the dairy cow, of which a summarized comparison is given below:

(1) By-law 5,537 (repealed) provided the following minimum specifications:—

Light: 2¼ sq. ft. glass per 4 cows.
Air space: 200 cu. ft. per cow.
Ventilation: 1 sq. ft. sectional area per 10 cows.

(2) Manitoba Health Act says:—

"Sufficient light, ventilation, and cubic air space per cow," but gives no specification or opinion of what should be "sufficient."

(3) A Federal Order in Council says:—
An ample amount of air space, and at least 2 sq. ft. of window glass per cow, well ventilated and drained.

(4) By-law 10,552 (Winnipeg, 1922) specifies:—
Concrete or impervious floor.
Thorough ventilation and drainage.
Minimum light: 2 sq. ft. window glass per cow.
Minimum air space: 500 cu. ft. per cow.

While the minimum amount of light and cubic air space are specified in a manner which leaves no doubt or alternative, it was considered advisable to leave the question of ventilation and drainage open to individual initiative, subject to approval, it being more a question of the successful outcome of such installation, which would be difficult to specify. The putting into force of these new regulations, having been well prepared for in advance, has to a great extent already been accomplished.

Introducing a Compulsory Tuberculin Test

Preliminary work leading up to the compulsory testing of all dairy cows, with prompt elimination of all diseased animals, has been in progress for the past three years. This included special inspections of all herds by the Veterinary Inspector and the testing of a number of selected herds voluntarily submitted by the owners. A questionaire on this matter, submitted in 1921, was replied to by a large number of the dairymen, the majority of whom were in favor. At the beginning of 1922 there was a large increase in the number of applicants for an immediate test, and our difficulties of handling same satisfactorily were multiplied. In the first place, our test was only applied annually, or semi-annually, as requested, re-tests being conducted just when the dairyman felt like it. We had no restrictive or coercive force behind us, consequently dairymen were only testing to improve business and with little or no intention of eradicating disease. Re-actors, if disposed of, in many cases turned up on neighbouring farms. At this stage we decided to stop, as we realized that unless we had power to order diseased animals to be destroyed, they would continue to come back. We also realized that it would be impossible to have the dairymen agree to destruction, unless some form of compensation were provided. A preliminary feel-out of the Federal Department's attitude gave us the impression that should the scheme for improved buildings, scheduled by our Department, commence to materialize, and the City Council express its approval by its willingness to pass a suitable by-law, then the Federal Department would probably take hold and assume the lion's share of this work. Thus we would be provided with a compensation fund and a staff of veterinary inspectors, all re-actors would be slaughtered, and disease eradicated.

It is a remarkable fact that while almost insurmountable difficulties may be encountered during the process of starting, or making headway, with a movement of such character, yet once a little momentum is gained, everything rolls into its appointed place and glides forward with smoothness and precision.

A Milk Committee appointed early in the year went methodically to work, first assuring themselves that the tubercular cow was no myth, and that even if her dangerous tendencies were not fully appreciated, that she was at least undesirable. Meetings were held and authorities consulted, while finally all dairymen were invited to attend a special meeting and state their views. An attendance representing over eighty per cent. was secured, and the whole situation thrown open to discussion. The Federal scheme was explained in detail, and the unanimous approval of the meeting was given to a resolution endorsing the scheme. It now began to look as if we were to accomplish something definite. Fifteen years had elapsed since the City first seriously

considered the tuberculin test, and in that period several attempts had been made to have the test compulsory, including the special application to the Federal Department in 1914, and a recommendation along similar lines in 1918. How rapidly everything moved in 1922 may best be illustrated chronologically as follows:—

January: Special Committee formed.
February: Dairymen agree to Federal Scheme.
March: Application of City to Ottawa.
April: Preparation of new By-law.
May: By-law passed by Council and approved by the Veterinary Director General.
June: Preliminary survey of dairies by Federal Department. General conditions and improvements contemplated produce a favorable report.
July: Federal tuberculin test commences.

Improvements to Buildings

In 1914 a Federal survey of our licensed dairy stables showed only 5, out of 100 inspected, to be satisfactory. In 1921, out of 80 stables inspected on the same basis, 10 were satisfactory.

An analysis of the 80 dairies licensed in 1921 shows the condition of the stables as follows:—

(a) Stables already up to Federal standard	10
(b) Owners who have agreed to build new stables	15
(c) Stables requiring improved ventilation	10
(d) Requiring more light and ventilation	15
(e) Deficient in cubic air space, light, and ventilation	15
(f) Requiring better drainage, light, and ventilation	10
(g) Difficult to define, may have to rebuild	5
Total	80

Early in September, 1921, the owners of the 20 worst stables, including 15 in class "b" and 5 in class "g," were notified that they would be required to provide suitable premises. The notice was issued early, in order that material, etc., could be hauled in the winter. That the dairymen appreciated our consideration, and were willing to improve, is shown by the fact that before spring 15 had commenced operations. This created a small building boom itself, which began to spread, several new men coming in, while others voluntarily commenced alterations or rebuilding in accordance with the requirements of our proposed by-law. We soon found it impossible to do anything in the way of providing individual plans or specifications, but met the situation by drawing up standard specifications on the unit plan, using 10 or 12 cows as a unit, which could be multiplied or added, so as to provide for almost any size of herd.

In these specifications the standard width of a stable was set at 34 ft., with a ceiling 9 ft. high, allowing 36 ft. in length for each 20 cows, in two rows of 10 cows each. In order that certain stables already built could be made to comply in the easiest manner, specifications covering 30 or 32 ft. in width were provided, the correct cubic capacity being secured by additional length or height of ceiling. All new stables, however, conformed to the 34 ft. wide standard.

Tables showing the window glass content of suitable stock size windows were also provided, and special sizes were quoted when desired.

Straight ventilation shafts for outlets were recommended, with a sectional area of 1 sq. ft. for each 4 or 5 cows.

The following shows the simple manner in which these instructions were issued to the dairymen:—

Proposed Stable for 40 Cows

Width: 34 ft.
Length. 72 ft.
Height to ceiling: 9 ft.
Foundation and floor: Concrete.
Drainage: Gutters to be graded to outlet.
Light, minimum allowed: 80 sq. ft. glass.

2 transoms, 9 light 8x10, 5 ft. each	10 ft.
16 windows, 8 light 8x10, 4.4 ft. each	70 ft.
Total	80 ft. glass

Ventilation: 2 shafts, 2x2 ft. section.
Total outlet area: 8 sq. ft.
Inlets provided by constructing a number of windows to open, or by special fresh air intakes.
Stalls: 3¼ to 3½ ft. in width.
Length: To suit cow and style of construction.

In this manner the large number were successfully handled, and mistakes in general dimensions and construction avoided; smaller details had of necessity to take care of themselves.

The building programme was away to a good start early in spring, and at the time the Federal Department made their survey about 30 stables were in course of construction or radical alteration; and this fact undoubtedly influenced, to a great extent, the prompt manner in which our request to come under the Municipal Tuberculosis Order was acceded to.

The wind storm of cyclonic proportions which swept this district about the end of June gave us a huge set-back, and was a heavy trial to several dairymen who had strained their resources in order to provide a good stable, only to have same badly wrecked and, in some cases, totally destroyed. However, this only delayed the matter a few months, so that by the beginning of winter all the work was practically completed.

Having commenced the year with only 10 stables satisfactory, we finished with 90 out of 100 in a satisfactory condition.

Improved Stables

Standard barns built in 1922	36
Barns remodelled in 1922	11
Additional light installed	29
Improved ventilation	4
Improved drainage	5
Total stables improved	85
Stables satisfactory, previously licensed	10
Stables satisfactory, not previously licensed	5
Total to be licensed in 1922	100

In the case of 10 stables included in the above, the improvement was of a temporary nature only, which accounts for the fact that we claim only 90% satisfactory. The 10 referred to were accepted on the understanding that a permanent improvement would be forthcoming in 1923, and on account of them being established dairymen previously licensed.

Notwithstanding the fact that our energies were devoted chiefly to stable construction, in recognition of the fact that if disease was to be eradicated we must have suitable housing, yet a considerable amount of construction work

was accomplished along other lines. Many premises were constructed on sites formerly vacant, so that dwelling houses, horse stables, milk houses, etc., had to be built.

Improved milk houses: new 20, rebuilt 2	22
Wells drilled and cased	12
Well houses with concrete floors	10
Separate stable for horses	5
Special isolation stable	1
Total	50

Adding these 50 smaller improvements to the 85 in connection with cow stables, it will readily be seen that there are very few of our 100 odd dairymen but what took some active part in this work. The total value of these improvements is approximately $125,000.00, the figures on which this is based being actual cost in typical cases, and does not include machinery, utensils, or equipment.

Cost of Improvements

36 new modern stables	$ 93,600.00
11 stables remodelled	8,800.00
29 improved light, 4 ventilation, 5 drainage — cost of	1,900.00
22 milk houses	8,700.00
12 wells drilled and cased	4,800.00
10 special pump and storage houses	3,900.00
6 special stables	3,300.00
Total	$125,000.00

Licenses

Owing to the fact that the new by-law did not come into effect until all licenses were about to expire at the end of May, and the matter of the tuberculin test not being finally settled, we were not in a position to invite applications for license until about three months later than the usual time for sending out such invitations. Then again, when we finally got everything settled and sent out notices, there was no rapid response, as the majority of the dairymen had by this time cooled off and were waiting to see how the other fellow landed. When testing commenced and some herds got hit hard, this reluctance in regard to taking out licenses became more pronounced. Objections were made to signing the application form (which embodied an agreement in connection with the tuberculin test), and it was only by tactful handling that finally all applications were in and issue of licenses commenced.

While there are possibly no legal difficulties, yet we found lots of practical difficulties which mitigated against a prompt issue of licenses, especially so when the applicant resides and has his place of business in an outside municipality. The license fees being based on the number of cows, the counting and checking of each herd devolved on our inspectors, and this work could only be done in the early morning or evening, when the cows were liable to be on the premises. In the majority of cases we found it easier to collect the fees and hand same to the License Department, rather than to perform a lot of police work in the city and country. We find that people from the country who come in to pay money wish to get through with the business in the simplest and quickest way possible, and we made it our business to oblige them, so that they did not have to make several trips to the

city or be referred from office to office. In this manner the total Dairy License fees credited to the City License Department were augmented by approximately $1,000.00 over the amount received in previous years.

The total number of licenses issued to the end of the year was 110, consisting of 104 licensed dairies, 2 pasteurizing plants, and 4 small depots. This shows an approximate 25% increase in numbers over the preceding year. Two original licenses have been cancelled and 5 transferred, in all cases at the request of the interested parties.

License plates handled indicate that the approximate number of milk waggons on the city streets is 275, as against 240 in 1921, showing an increase of 35 waggons, 20 of which may be credited to new dairymen and 15 to increased business among the older firms. The increased number of waggons would, to the uninitiated, indicate a large increase in sales of milk —and this true in so far as total volume is concerned—but a large part of this increase must be credited to the suburban municipalities, where several of our dairymen have quite a large clientele.

In past years it has been the custom to make some allowance or adjustments of fees where a dairyman did business in more than one license requiring municipality, but this year no allowances were made to dairies outside Winnipeg, as the license fee embodies an inspection fee, and all the applicants' cattle had to be inspected whether the milk was sold in the city or otherwise, and seeing that inspection included the tuberculin test the fee charged could not be considered onerous.

The Licensed Dairies

Notwithstanding the introduction of a new by-law involving drastic changes, including the tuberculin test, which by many was expected to reduce the number of licensed dairies, yet the very opposite happened. All appeared imbued with the idea that it was a question of survival of the fittest, and that, while many would be squeezed out, it would be easier and better for the survivors. Every one already in business made a desperate effort to stay, and it was not our policy to be unduly hard in the face of such a display of willingness to do everything possible to comply with the new regulations.

Quoting from our 1920 report: "Loose regulations breed temporary conditions, while regulations of a more stringent character encourage permanency." The above opinion was emphatically endorsed by the happenings of 1922. Undeterred by the high standard required, a number of newcomers appeared on the scene, attracted by the opportunity of entering a high-class business on the ground floor. Dairy farms for which licenses were issued are located at distances varying from five to fifteen miles from the city. The comparative increase is shown as follows:—

	Licenses 1921	Vendors 1921	Licenses 1922
Pasteurizing Plants	2	2	2
Small Depots	3	3	4
Dairies	77	80	104
	82	85	110

We were kept so busy during the season arranging for tuberculin tests, inspecting and checking up on applications, inspecting new buildings during construction, etc., that we had no time to spend on score cards. There is no doubt that a big change would be noted here, as the majority would gain 20 to 30 points on account of the test, while building improvements would be responsible for a possible increase of similar proportions.

The Winnipeg Dairymen's Association came into existence early in the year, and while in its early stages it was possibly under the control of those who did not wish to see any such changes as we proposed, yet it eventually

arrived in the hands of a number of the more progressive dairymen, who recognized the value of the work in hand and convinced the others that this was the proper course to follow.

The Department has adopted the policy of dealing directly with the Association on all matters of general interest, while all those business interests having something to sell or exploit are now referred to the Association. In this manner any good proposition would possibly find favor, while our Department would be free of any suggestion of possible endorsement.

Commencing in early spring, the policy of mailing a monthly or periodical letter to all dairymen was inaugurated and proved extremely successful. In this manner each individual was kept in touch with all the latest moves in connection with the tuberculin test, with details as to disinfection and quarantine arrangements, isolation and testing of additional cows, market news and where cows were to be found. They were also kept informed of the Department's doings, and what we expected of them. Various business hints were thrown in, while due warning was given of seasonal pests or troubles, and what precautions were necessary to avoid same. By these means we were enabled to keep in personal touch with all dairymen at short intervals during the season, and at times when a personal visit to each and all would be practically out of the question.

Tuberculin Test 1922

On account of the desirability of not unduly interfering with any dairyman's business, it was decided to move slowly and carefully, selecting only a few herds each week, and these in different districts, so that dairymen would be enabled to help each other and no milk shortage would be liable to appear. In this manner we kept getting a little farther ahead, and as the season advanced, and the pasture kept good, and milk flowed freely, we were able to constantly increase our weekly quota, so that in approximately four months the first test was through and 100 herds tested. Commencing in July, a number of volunteers were secured, who offered their herds to be tested first. Later on there was a tendency to avoid an early test, but a number soon realized that those first tested had first choice of the market for additional cows, and had more opportunities of getting assistance from dairymen with surplus milk. The Dairymen's Association made a draw to determine the order of precedence of its members. Another advantage to the early volunteers lay in the fact that all additions were tested immediately, so that by the time the last herds were tested several of the early ones had replaced all re-actors, while those tested later had no option but to replace with tested animals only, under a regulation coming into force just at the time our first test was completed.

Weekly Quotas, Herds Tested

					Month
July	2	2	3	3	10
August	4	4	6	6	20
September	7	7	8	8	30
October	9	9	10	12	40
Total Herds					100

For the purpose of comparison and easy calculation, the number of herds in 1921 will be considered as 80 (77 licensed and 3 special farms), while the number of herds in 1922 will be considered as 100, being the number we had in hand to the end of October and included in the first test. The average size of a herd may be considered as 40 head, and apparently did not vary

from 1921 to 1922. The normal strength of the dairies licensed in 1922 was around 4,000 head, comprising 3,000 milking cows, 600 dry cows or springers, 100 bulls, and 300 heifers and young stock. In discussing the results of the test round figures only will be used, avoiding fractions in percentages, and will be based on the assumption that our 100 herds had a normal strength of 4,000 head. The remarkable features emphasized by the results of the first test are as follows:—

A few herds which had been previously tested had as low as 5% re-actors, while a few isolated herds, not previously tested, had as low as 10% re-actors. About 15 herds had around 25% re-actors, while fully half the herds ran 50%, the balance going up to 60, 70, 80, 90, and in some cases even 100% re-actors. Out of the entire 100, only 2 small herds were found without re-actors on the first test, and these were new dairies, which had commenced to build up a clean herd by purchasing only tested stock. Of all the dairies previously in business, not one went through clean; in fact, they practically all had sufficient re-actors to warrant the assumption that, previous to the putting in force of the Municipal Tuberculosis Order, Winnipeg dairy herds were 100% diseased, in so far as the expression applies to the herd itself.

If we take out 10 herds, including those 2 found clear and 8 more with the lowest percentage of re-actors, then the percentage of re-actors in the remaining 90 would be so high as to warrant the quarantining of the entire herd as suspicious, in the expectation that all having been in close contact were liable to be infected.

During the four months covered by the first test dairymen purchased approximately 3,000 additional animals, which were all tested as rapidly as possible. In November and December all additions had to have passed one test before being taken by the dairyman, and had to pass a second test before being added to the herd.

First Test, July to October

	Total	Passed	Re-actors	% Re-actors
First test 100 herds	4,000	1,500	2,500	62.50
Additional tested	3,000	2,500	500	16.66
Total tested 100 herds	7,000	4,000	3,000	42.85

It will be noted that it was necessary to test 7,000 head of cattle in order to find a sufficient number passing the first test, so as to bring the 100 herds back to normal strength. Out of 4,000 head in the original herds, 2,500 re-acted at the rate of 62.5%, while out of 3,000 additional cattle, purchased in many cases in a haphazard manner and tested during the same approximate period, only about 500, or 16.6%, re-acted, thus reducing the percentage of re-actors credited to these herds from 62.5 to 42.85%.

The remarkable feature of the whole scheme was the rapid manner in which the demand for cows created a supply, so that before the end of the year all herds were back to normal, with no shortage of cows or milk and no rise in price of the latter commodity.

Owing to the fact that a few herds only came under the scheme late in the year, complete figures for any given test can at present only be approximate, but nevertheless a fair indication is obtained. For instance, the second test, conducted in November and December, only showed 3,800 animals tested; but the herds were still at full strength, as at least 200 cows were under quarantine on the various dairies, making the total up to 4,000. In addition to this, some of the later herds were still not due to test. The loss, based on a normal strength of 4,000 head, is now represented as 16%, representing almost 640 cows.

Second Test, November and December

	Cattle	Re-actors	% Re-actors
100 herds normal strength	4,000	640	16%

Thus it has been found necessary, during six months' eradication work, to condemn over 3,600 cattle in order to provide 100 dairies with 4,000 healthy cows; and the process is not yet complete, as the second test left the dairies with only about 3,400 head, so that 600 tested cows have to be purchased direct in order to bring conditions back to normal.

However, we have reason to feel well satisfied with the result up to now, which shows that while in July, 1922, our dairy cattle were 62.5% diseased, yet, six months later, the same herds were found with only 16% re-actors, and these, being immediately removed and slaughtered, would lead us to expect a still greater reduction when the next test is applied. While none of our original dairies got through the first test clear, and only two herds built up during the test got clear, it is gratifying to note that at least twelve herds got through the second test clear, while several more were only credited with one or two re-actors.

High Percentage of Re-actors

The systematic administration of the tuberculin test by Federal Inspectors revealed an alarming state of affairs in connection with the dairy herds in the immediate vicinity of Winnipeg. This was further emphasized when on inspection after slaughter over 900, or 30% of the 3,000 re-actors to the first test, were condemned and the carcases tanked. With 900 active disease spreaders in 100 herds, the wonder is that any animal escaped, and this is borne out by results which show very few animals of the original herds now survive, and even these would be liable to fall down during a later test. Once a district arrived at this stage, the condition would remain permanent unless drastic measures for eradication were introduced. There is no doubt but that the Winnipeg herds have been in this condition for many years, never improving, but possibly getting worse, due to the lack of any systematic method of control or tuberculosis eradication work. The condition brought to light by the test provides a complete vindication of our contentions, confirms the integrity of our motives, and gives an insight into the magnitude of the operations so persistently advocated.

Now, what about those 900 cows whose bodies were so diseased that the entire carcase had to be destroyed? If we take any stock in expert opinion, then we know that the milk of these animals could at almost any time contain live tubercle bacilli, and so constitute a grave danger to the children of our city. Without making any further comment on what might happen, and what undoubtedly did happen far too often, we are thankful to be able to state that such cannot happen now, and that the bovine tuberculosis eradication work now in hand gives absolute and constant protection.

To get some idea of the several contributory factors causing the high percentage of re-actors, we will first have to look back and study the history of these dairies and herds collectively, or as applied to groups, or as individual cases. Many of the dairies have been running for over twenty years without a complete change of stock or surroundings at any one period. Here we have old established dairy herds, housed under unsanitary, unhealthy conditions, overcrowded in the stables, and overcrowded on the pastures in summer, milk-forcing feeds everywhere in evidence, and in many cases used in abnormal quantities, lowering the vitality of the cow, especially at a time when the possibilities of infection are at a maximum. Contact infection would appear to offer the greatest possibilities. Where cows are housed under conditions far from ideal for six or seven months in the year, in close contact, with common water troughs and feed mangers, in the absence of any preventive measures, disease is bound to spread. The level prairie having very little and in many localities no natural drainage, while cheaper land, picked up for

dairies in the early days, was usually the lower lying land, the cattle having free access to ditches and pools of stagnant water, in many cases heavily contaminated with drainage and manure from the dairies themselves. The prairie in the immediate vicinity, being practically fouled with manure, which is very seldom spread, but left in indiscriminate piles, all constituting contributory factors which require attention. Even with new modern stables repiacing old ones much remains to be done, in order that the cows may be adequately protected. Minor conditions may be much ameliorated by a lavish use of disinfectant, filling of low places, fencing of ditches, and spreading of manure on the prairie, where a beneficient sun would have the effect of rendering same harmless.

City Cow-Keepers

The sanitation of city stables, and the keeping of cows therein, has for several years come under the Health By-law; but since it was required that all privately owned cows should be brought under the Municipal Tuberculosis Order and be tuberculin tested, regulations covering same were inserted in the new dairy by-law. These regulations were practically the same as those occurring in the Health By-law, except that minimum distance from the nearest dwelling house was reduced from 40 to 25 feet in the case of one cow, and from 80 to 50 feet in the case of two cows, while tuberculin testing was made compulsory.

The staff having been kept busy all summer with the licensed dairies, it was not until fall that we could spare an inspector to make a survey of housing conditions as applied to citizens' cows. This survey was completed in three months and a list of some 254 cow owners compiled, representing almost 300 animals. The housing conditions pertaining to these cows were found in the majortiy of cases disappointing, fully 75% or more not complying with those regulations so essential to the health of animals, such as light and ventilation, while sanitary deficiences were quite numerous. It was now too late in the season to commence on any organized campaign for improvement, but it is evident that an enormous amount of work will have to be done, or a smaller number of cows kept in the city will result. In many cases the stables were dirty and badly kept, littered with rubbish, while chickens and poultry were housed with the cow.

It is not good policy to test cows housed under such conditions, and, even if tested, the chances of the cow remaining healthy are considerably decreased. A privately owned cow should be housed under conditions at least as good as those required for dairy cows. However, we are hoping to have all cows in the city tested some time during the winter; but now, at the end of the year, we have nothing definite in sight.

Milk Consumption

We note, for the year 1922, a large increase in the number of licenses, and also a big jump in the number of delivery waggons engaged in the distribution of milk. This increase is out of all proportion to the slight increase credited to our population; and while some portion of the increased volume carried by the 35 extra waggons may be credited to increased service, yet the greater portion must be credited to an increase in total consumption. Assuming that 15 waggons are required to take care of the decreased loads carried by some vendors, then the remaining 20 must represent new business, consisting of approximately 1,000 gallons per day. Since this quantity could not be accounted for by a proportionate increase in population, yet its existence is confirmed by the fact that we have an equivalent number of new vendors, with increases in license fees and vehicles, and our check on individual and total output indicates that 1,000 gallons represents the minimum increase.

The daily consumption now stands at 14,500 gallons, or 0.58 pints per capita, as compared with 0.54 pints per capita for 1920, which increased to 0.55 pints per capita in 1921. Thus, while a small rise in per capita consumption was noted in 1921, a rise of three times its magnitude took place during 1922. The 1921 rise was credited to a fall in price of milk, totalling 25% during the year. In 1922 the price remained stationary during the whole year, so that the rise in per capita consumption may be attributed, first, to the introduction of new regulations, which gave the consumer more confidence in milk as a food for children, and, secondly, to the intense advertising campaign carried on by several parties, which, being along educational lines, tended towards an increased per capita consumption. In calculating per capita consumption, the milk produced by private cows in the city is ignored, while we are also careful not to include milk prepared in our city plants, which is distributed in the surrounding municipalities.

A comparison of quantities and distribution service for the past five years is given below:—

1918	12,500 gallons per day,	240 delivery waggons
1919	13,000 gallons per day,	230 delivery waggons
1920	13,000 gallons per day,	220 delivery waggons
1921	13,500 gallons per day,	240 delivery waggons
1922	14,500 gallons per day,	275 delivery waggons

Classification of Daily Supply

Pasteurized, quarts in bottles	7,000 gallons
Pasteurized, pints in bottles	1,200 gallons
Pasteurized, bulk in cans	600 gallons
Raw, certified, in bottles	360 gallons
Raw, from tested cows, in bottles	340 gallons
Raw, from tested cows, bulk in cans	5,000 gallons
Total daily consumption	14,500 gallons

The tuberculin test may be considered responsible for boosting the sale of raw milk, which now forms 40% of our total supply, and this is the more remarkable when we remember that over 3,000 cows belonging to the herds of these raw milk vendors were eliminated on short notice.

The two large pasteurizing plants located in the city handle practically 60% of our supply. These two companies handle 95% of all pasteurized milk consumed and 10% of all raw milk, including the entire supply of certified milk. Of the four smaller depots located one inside and three outside the city, two handle pasteurized milk only, while the other two handle raw milk supplied from an accredited herd.

Premises, Etc., Under Inspection

Licensed Dairies (country)	104
Milk Depots (city and country)	6
Pasteurizing Plants (city)	2
Pasteurizing Plants (country)	2
Creameries (city)	8
Milk Stations (country)	8
Cow Dealers (city)	6
Institutions (city)	4
Delivery Waggons (city)	275
Private Cow-keepers (city)	225
Table Cream Shippers (country)	250
Milk Shippers (country)	1,050
Total	1,940

In addition to the above there are approximately 10,000 producers, more or less, constantly shipping churning cream to the various creameries in the city.

The inspection service we are able to give, while fairly covering the city portion, is of necessity very much curtailed as regards the country; as for example, out of 1,300 milk and sweet cream shippers we only record 500 inspections for 1922, and these only represented about 200 individual farms visited. Out of 104 licensed dairies, however, we have 1,500 inspections, being an average of 15 per dairy. Even this service is very irregular, and may in certain seasons be far from adequate.

To follow this matter further, milk samples for the year totalled 1,100, or an average of 4 per vehicle per annum, which certainly cannot be considered as keeping our milk supply under absolute control. However, dairy inspection allows of a certain elasticity, which enables us to pull away from the outside, less important work, and concentrate our restricted efforts on whatever we may consider to be most important for the time being.

Country Inspection

We usually expect to have at least four or five months in the summer when the roads are good, and inspections can be rolled up every day with the least trouble and at a minimum expense. The summer of 1922, however, was marred by several spells of wet weather, which placed the roads, and especially the prairie trails, in bad shape. Special inspections on applications for license and the large number of building inspections took up all the time which we could allot to the country; in fact, this work was not finished when the rains and snows of October administered an effectual check to any further development. During the summer and fall, however, sufficient extended trips into the various milk-producing districts were arranged, with a view of providing us with a general idea of all those conditions and factors pertaining to production and adequacy of supply.

While it is gratifying to note an increased interest in the growth of the heavier fodder crops, yet it is evident that we are only just on the threshold and moving very slowly. A few silos constructed each year are noticeable features, but in many cases the grower of a heavy fodder crop has no proper silo in which to store same, thereby causing a huge waste. Milk producers who expect to make profits by handling the cow as a machine, designed to turn expensive mill feed into milk, are backing a weak horse, and are advised to thoroughly survey the immense possibilities of the land they occupy before succumbing to a wave of pessimism, for which they indiscriminately blame the high cost of feed or the high cost of production in general, together with the low cost of the product, be it milk, cream, or butter.

It is true that there is an apparent big gap between prices paid the producer and those charged to the consumer; but if each blame the other, or both blame the distributor, without looking for the leakages on their own side, conditions will never be much better.

The dairy farmer, to be successful, must be a mixed farmer; he must study and apply "Rotation of Crops," and he must be prepared to give a fair trial to those milk-producing crops which have proved so successful in many parts of Manitoba and other Provinces. Each year, in addition to grain, he should have a certain acreage sown to two or more of the following crops—corn, sunflower, alfalfa, sweet clover, mangels, sugar beet—and he should also make a great effort to provide suitable storage for same. In such manner expensive feed bills will be eliminated and profits remain on the farm.

Detailed Mileage—Country 1922

	District "A"	District "B"	District "C"	Totals
January	500	170	260	930
February	225	55	265	545
March	205	55	140	400
April	230	130	180	540
May	540	100	105	745
June	530	290	190	1,010
July	1,045	215	370	1,630
August	905	130	260	1,295
September	900	160	155	1,215
October	750	.....	195	945
November	400	65	190	655
December	665	.....	220	855
Totals	6,895	1,370	2,530	10,795

The above figures apply to country trips only, and do not include city mileage.

Quality of Milk

Prosecutions and Condemnations

The butter fat content of our milk supply has been fairly constant for the season, with a slight falling off towards the end of the year. Examinations for bacteria show the usual fluctuations, with, however, a larger proportion of low counts than we have had in any previous year, which shows that some of our dairymen are taking exceptional care of their product, while sediment tests in the majority of cases indicate that the milk is clean and wholesome.

The absence of any necessity of instituting Police Court proceedings, during the greater part of the year, is a notable feature when we remember past performances, notwithstanding the fact that an abundant supply obviated temptation and a tendency on our part to be lenient and issue timely warnings. The dairyman was having a busy time with his buildings and the tuberculin test, and was possibly standing a little more punishment than was his due. A small number were prosecuted under the license regulations, this being the only method by which we could obtain proper enforcement.

Condemnations of milk during the year were about normal and practically infinitesimal in face of our large supply. Condemnations of churning cream were higher than usual, being heavily augmented in the late fall by dozens of shipments contaminated with French weed, this being a seasonable complaint, aggravated by the open growing weather at that time and the carelessness of the shipper in allowing cows to run on the weed-infested stubbles.

Sickness on Dairies

Special investigations in regard to sickness during the year were conducted in 19 instances, and 7 cases of communicable disease were reported. Precautionary measures were immediately instituted in all cases.

Two milk borne outbreaks occurred, details of which need not be commented on in this report.

The Dairy Industry

While the dairy industry has probably suffered less than any of the farm product industries during the process of deflation and reconstruction, yet it is doubtful if Manitoba and the West have held their own in connection with world competition. In order to prepare a satisfactory product for either home or export trade, it is difficult to establish and operate separate conditions with successful results. Educative measures must be employed, and without these any system based on grading either the raw or finished product will fail to give general satisfaction.

The fact that New Zealand butter has found a market in this country gives us timely warning of what to expect should our opportunities be neglected. Any additional expense added to the cost of manufacture, handling, storage, and marketing is liable to be tacked on the producer; thus a heavy inspection system may possibly prove irksome and expensive, and retard rather than assist in meeting outside competition.

Recommendations

We feel so satisfied with the advanced step taken during the year that for once we have nothing of a specific or drastic nature to recommend. For many years certain changes have been advised and repeated annually, until finally we were able to recommend a policy which was adopted. Our staff, while small numerically, gives very efficient service, the details and ramifications of which spread far beyond the confines of our city.

We would like, however, to exercise a more efficient control over those conditions causing a direct menace to health, which, if effective, might possibly prevent a recurrence of such milk-borne epidemics as those previously mentioned, and this means more rigid inspection. It appears unfair to the dairyman to neglect any preventive measures, while always being ready to apply a drastic remedy, this being contrary to the health workers' creed, which is based heavily on prevention in combination with 100% efficiency.

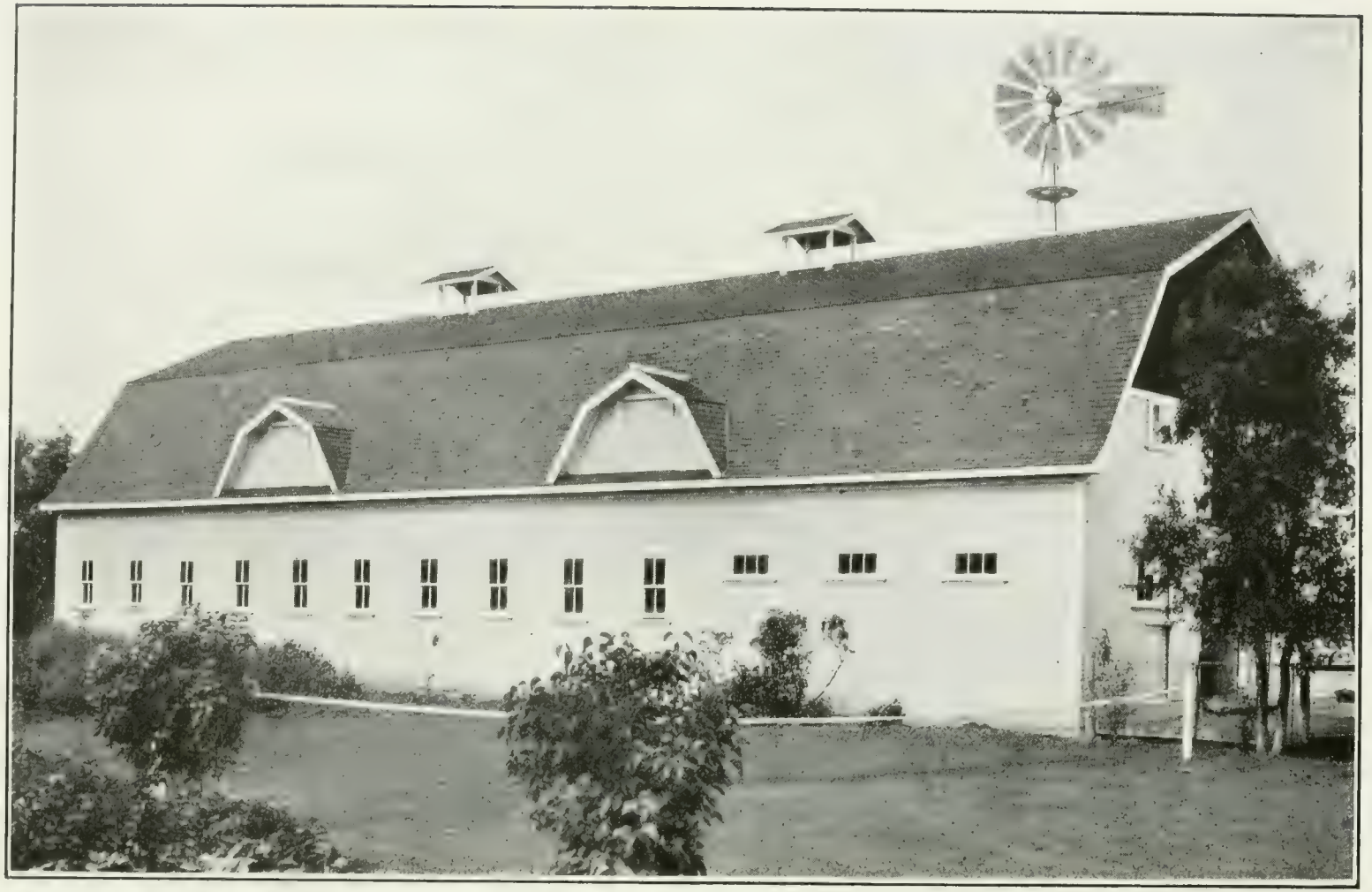
Our improved regulations give us all necessary powers for the absolute control of all milk and cream consumed in the city, but no regulation can be made effective and absolute unless backed up by sufficient force. Many abuses are in evidence, and without doubt small quantities of milk and cream from unauthorized sources dribbles into the city. Hotels, restuarants, and other business houses are liable to contract for a supply from unlicensed sources at far outside points. We are unable to keep a patrol on the city limits, and occasionally small vendors in adjoining municipalities encroach.

Some of our licensed dairymen are not any too scrupulous and lend themselves to various mal-practices, which are almost within the law; among these is a growing custom of subletting or farming out the privileges conferred by a city license. The peddler or agent, as he sometimes styles himself, provides his own horse and waggon, buys the milk from a licensed dairyman, and proceeds to retail same, transferring his patronage to another dairyman at will, and operates a general milk business under the cloak of a license which would never be issued under his own name. These weaknesses and leakages are merely mentioned as illustrating the difficulties of maintaining absolute control.

I have the honor to be, Sir,

Your obedient servant,

E. C. BROWN,
Chief Dairy Inspector.



New dairy barn constructed during 1922 by one of our leading dairymen, who has operated a dairy inside the City Limits for the past twenty years. The new premises are located in a choice residential district.

DAIRY INSPECTION, 1922

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Inspections—													
Cow-Keepers	6	.....	.....	.....	.....	.....	.....	.....	.....	77	90	107	280
Licensed Dairies	80	81	73	100	147	266	180	110	147	138	127	113	1562
Farm Shippers	11	7	21	33	36	38	117	124	49	42	15	10	503
Milk Depots	45	49	45	36	39	17	32	35	35	37	35	45	450
Creameries	31	36	36	38	38	25	33	40	37	41	43	46	444
Stores, Restaurants	43	39	47	45	44	11	27	22	13	...	...	...	311
Vehicles	105	122	153	156	182	92	150	124	138	109	103	100	1534
Special	23	23	36	50	72	83	52	45	46	351	452	73	1306
Total	344	377	411	458	558	532	591	500	465	795	865	494	6390
Samples—													
Milk for Analysis	21	50	103	93	48	...	82	52	73	39	81	55	697
Cream for Analysis	9	1	5	...	...	...	1	2	2	...	4	2	26
Milk for Bacterial Counts	...	12	40	32	19	...	16	...	10	11	16	40	196
Sediment Tes's	5	11	8	19	73	31	...	...	...	37	14	...	198
Water	...	...	...	...	...	...	...	...	...	...	...	...	...
Miscellaneous	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	35	74	156	144	140	31	99	54	85	87	115	97	1117

DAIRY INSPECTION, 1922—Continued

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Sickness—													
Special Investigations	..	1	1	2	3	....	1	3	3	....	1	....	19
Communicable Diseases	..	1	2	2	.....	.....	.....	....	1	....	1	..	7
All Other Cases	..	..	..	..	.....	.....	1	....	.....	....	....	....	1
Epidemics	....	....	....	.....	.....	.....	.....	.....	....	.....	.....	....	.....
Notices—													
General Notices	....	84	....	.....	100	100	.....	100	....	100	102	..	586
Special Notices	3	3	34	7	11	15	13	27	35	27	2	4	181
Routine Notices	1	.....	3	4	2	1	3	56	25	.....	.....	2	97
Verbal Notices	12	6	22	33	63	69	41	95	42	40	39	30	492
Total	16	93	59	44	176	185	57	278	102	167	143	36	1356
Condemnations—													
Milk lbs.	..	....	130	150	....	80	.....	150	.....	4605	80	.....	5195
Cream lbs.	....	.....	.....	43	....	103	396	497	50	865	1258	100	3312
Tuberculin Test—													
Healthy	241	193	.	.....	.....	.....	.....	.....	.....	....	.....	..	.....
Re-actors	109	72	.....	City test discontinued			Federal test commences.				.....	....	.....
Total	350	265	....	....	.....	....	....	.....	....	....	....	....	.....

DAIRY INSPECTION, 1922—Continued

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Prosecutions—													
Summonses Issued	1												4
Convictions	1												4
Cases Dismissed													
Cases Withdrawn													
Fines	$13.00		$44.00										$57.00
Offences—													
Milk Below Standard	1												1
Watered Milk													
Unclean Milk													
Cream Below Standard													
Unlicensed Premises													
Unlicensed Vendors													
Misuse of Bottles													
Dairies Closed													

REPORT OF CHIEF FOOD INSPECTOR

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:

I have the honor to submit a report on the activities of the Food Division during the year 1922.

Owing to the business depression many stores have changed hands: a number of small stores have opened up, the proprietors often being men who, being out of employment, started in business for themselves. These conditions have created considerable work for the Division, the number of stores now reaching 2,030, as compared with 1,808 last year, an increase of 222.

Inspections were 23,484, as compared with 22,535 in 1922.

Abattoirs

No complaints were received this year regarding emanations from abattoirs.

The installation made last year at an abattoir of a deodoriser to take care of the emanations having proved satisfactory, the installation was a subject of interest to several visitors to the Sanitary Inspectors' Annual Meeting, and enquiries regarding operation and results were received from points as far distant as Melbourne, Australia.

Bottling Factories

Business conditions last year affected the output of summer beverages to such an extent that 3 of the smaller places closed up. A branch of a larger firm started an up-to-date plant with the latest bottle working machinery. Two of the others, installed the latest improvements in sterilizing and washing bottles. Bacterial counts indicated that bottles were being efficiently washed and sterilized. No complaint were received during the year.

Bakeries

For some years complaints had been received regarding the practice of exchanging bread. The difficulty of obtaining sufficient evidence to obtain a conviction, as palpably the practice would not be carried on in the presence of an inspector, resulted in the practice becoming more or less common.

However, a plan was evolved whereby we were able to obtain sufficient evidence for a conviction, with the result that the practice suddenly stopped.

Quite a number of persons, unable to obtain employment, started small bakeries; some of these commenced in unsuitable premises which required considerable improvement before permits were issued.

Complaints

Complaints as received, whether over the phone or personally, are recorded in a book provided for that purpose. The inspectors sign for any complaints which occur on their district, and furnish a written report on the same.

Last year we had supervision over the meat and groceries supplied the unemployed, and complaints were numerous; only a few of these had any foundation, mostly being due to poor handling after receipt of the goods. Frozen fish caused the most complaints. People receiving this allowed it to lie in a warm place to thaw out or thawed out in warm water. Instructions were issued to place the fish in cold water to thaw out, and immediately clean when thawed. Following these instructions the complaints ceased.

Condemnations

If any proof were needed of the necessity of food inspection, it was furnished this year by two cases.

The first of these occurred in August, when the Department was requested to inspect a shipment of imported potted meats in glass jars. The contents of several of these, when opened, were found to be in a state of advanced putrefaction. Bacterial examination revealed a variety of putrefactive organisms. The whole shipment of 30,245 jars was condemned.

By a remarkable coincidence, 8 cases of poisoning from the consumption of potted meat in glass jars occurred in Scotland the same day that the seizure was made in Winnipeg. The Dominion Government was notified and, acting on information furnished by the Department, seized the rest of this shipment distributed over Canada, amounting to 2 carloads.

The other case was in regard to poisoned celery. A person brought in some celery and requested an inspection. The celery on examination showed signs of having been sprayed with some substance resembling Paris Green.

Analysis showed that this spray contained considerable arsenic.

Investigation revealed that four persons at a rural point had become sick after the ingestion of celery from this shipment. Prompt action on the part of the Department in seizing the remainder of the shipment in Winnipeg, prevented any cases of sickness among the citizens. The incident was reported to the Dominion Government, who inspected subsequent carloads, and ordered these washed under government supervision, where examination indicated it was necessary.

Our information is that celery is sprayed by the grower to prevent the depredations of grubs and molds, but some growers use arsenic in excessive quantities.

There were some 23,000 lbs. less food condemned this year. The decrease was mostly in vegetables, due to the favorable fall weather for marketing. Canned goods mainly, owing to the shipment of potted meats, as before noted, showed an increase.

Although less beef and pork was shipped in, there was an increase of veal. Condemnations of all these meats show an increase, partially due to the hot weather experienced this summer. One abattoir on the outskirts of the city, not under Dominion inspection, was closed. A new sausage factory was opened up in its place, and as it is impossible to inspect meat in the shape of sausage, the necessity is apparent of having a certificate that all meats incorporated in sausages, not under our inspection, are from government inspected sources. The question has been discussed with the City Solicitor, but apparently the City has only power to ask for meat to be brought to some central point for inspection, which in the case of sausage is palpably useless.

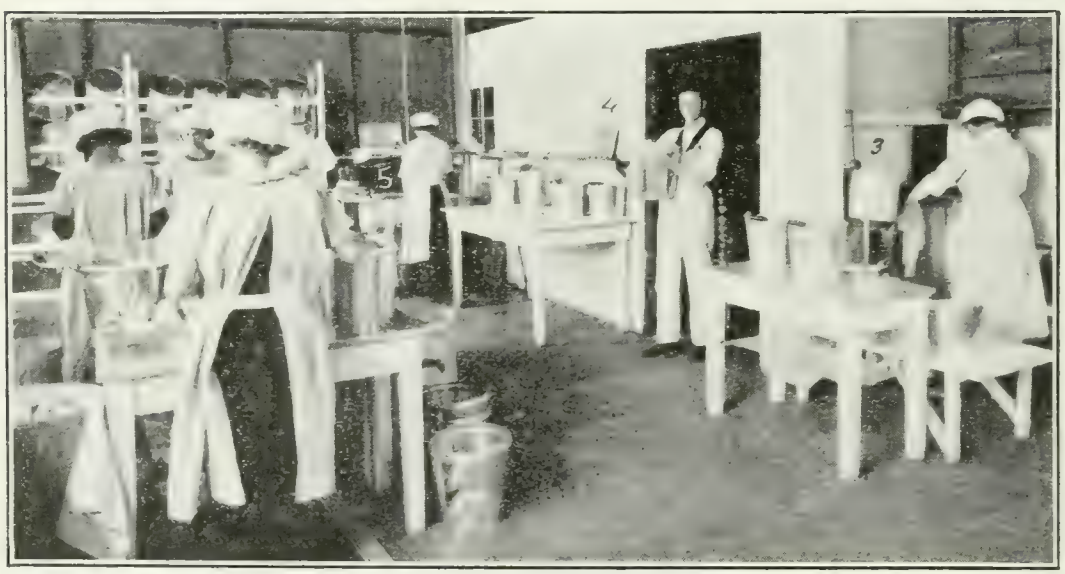
Egg-Handling Plants

Since absence of natural light is required for this business, these places are apt to be conducted with an inadequate supply of ventilation, especially is this noticeable during the summer months, when the temperature, and also an occasional egg, are "high." Steps were taken to see that ventilation was provided by having transom windows opening at the top.

An innovation as regards handling eggs was started this year by a company who made a speciality of putting up frozen eggs in 30-lb. pails. The eggs are examined individually for appearance and smell as they are broken; they are then placed in pails. As the pail is filled, the contents are placed in a mixer, where any shell or membrane is eliminated by passing through a strainer and a homogenous article results. Sterilized pails are then filled and samples

Modern Egg-Handling Plant

1. Examining eggs individually for appearance and smell.
2. Placing in 30 lb. pails.



Modern Egg-Handling Plant

3. Homogeniser and clarifier.
4. Tray on which samples are heated by.
5. Steam heater, where product is subjected to heating test.

taken; the samples are heated for 7 minutes by steam, when any objectionable odors, if present, will develop. After passing this test the pails are promptly, frozen. The result is a high-class product for bakers and food establishments at a reasonable price compared with cost of cases and fillers in keeping eggs in the shell around 30 degs. F. and with sufficient humidity. This year steps are being taken to have all eggs sold according to Government trade. This will assure consumers of getting eggs of the quality they pay for, according to size and age.

Flies

With one or two exceptions we had no fly nuisance this summer, the exceptions being bakeries.

One bakery in particular was exceptionally bad, and special efforts were required to get rid of the nuisance, as the flies were propagating in the manure and refuse from the horse stable situated on the rear of the same lot. This experience seemed to prove the expression of opinion of many scientists that flies mainly live through the winter in the adult stage, as this particular bakery, in spite of repeated warnings, always had a few flies apparent through the winter. We are again making strenuous efforts to convince those who see no harm in having an occasional fly around during the winter that this carelessness is responsible for a nuisance and expense of fly pads, etc., during the summer.

Fruit and Ice Cream Peddlers

For a number of years we periodically, each summer, received complaints from consumers of fruit unfit for food being sold by peddlers. As these peddlers had no means of identification, and generally omitted to return to the neighborhood where they sold the unsound fruit, it was impossible to locate the guilty party. Last year the Department inaugurated the idea of requiring these peddlers to have their names and address in legible letters printed on their vehicles. By co-operation of the License Department we are able to have the wagons painted and name inscribed before receiving a license. It is satisfactory to relate that we did not have one complaint this summer from consumers regarding the quality of the fruit sold by peddlers. The ice cream wagons are required to be fully closed in so as to afford protection from dust and flies. These wagons are now very satisfactory.

Ice Inspection

The ice for the City of Winnipeg is supplied principally from the Red River, nine miles above Winnipeg, but there is now a considerable amount of manufactured ice used. A permit to cut ice must be secured from the Medical Health Officer, and the ice from the river is subjected to rigid inspection before a permit is issued, samples being submitted to the Chemist and Bacteriologist.

No ice is allowed to be cut for food purposes below the point of entrance of any sewer, but may be cut for refrigeration purposes where it does not come in contact with any particle of food.

Jitney Bars

Quite a number of hotel bars, which had been in disuse since the advent of prohibition, applied for licenses as "Jitney Bars." By arrangement with the License Inspector, under authority of the Hotel By-law, which requires hotels to have a permit from the Health Officer before opening, we were able to improve conditions by having adequate sinks and hot running water installed. Anyone acquainted with conditions as they obtained some years ago, will appreciate the necessity for this improvement.

Poultry Slaughter Houses

A business sprung up during the last few years is the business of feeding and slaughtering poultry. At first conducted in old stables and outhouses under insanitary conditions and with considerable discomfort for employees, by exercise of regulations recently enacted, we have been able to improve conditions, so that now there are nine up-to-date places. The business has

increased to such an extent that Winnipeg is rapidly becoming one of the big dressed poultry centres of Canada.

The volume of business may be gauged by the fact that one plant alone handled 1,500,000 lbs. of poultry last year, of which 60 carloads were exported. A few years ago we were importing 20 to 30 carloads of dressed poultry for Winnipeg alone.

Prosecutions

The prosecutions numbered the same as last year. The largest number were for neglecting to keep premises in a satisfactory condition.

Exposing fruit for sale without proper protection was responsible for two prosecutions, and, as noted in referring to retail stores, it may possibly be necessary to take continued action again regarding this procedure.

One successful prosecution was for exchanging bread.

Railways

Requests for inspection at Freight Sheds and Express Companies are numerous. To give adequate inspection, if we had the staff, an inspector should visit these places every day at regular intervals and inspect goods before being sent out on the distributing vehicles. In this manner it would save sending and having returned carcases which are refused by the butchers.

Recommendations

A condition which has caused the Division some concern is the installation of pipeless furnaces in food stores.

The logical place for a person, when cold, is to go and stand over the hot air floor register. These become the receptacles for dirt off the shoes, cigar and cigarette ashes and butts, matches, and different articles which children may drop down. We try as much as possible to have containers placed under the registers where possible, and the registers cleaned out at regular intervals. One has only to consider the warm air drying the contents of these registers and the air being circulated to see the necessity of some regulation. The question arises whether floor registers and pipeless furnaces should be allowed in food stores.

Retail Stores

Food products rapidly deteriorate through improper handling, lack of refrigeration, and exposure to dust and flies. The Public Health Act requires that all foodstuff shall not be exposed in open doorways without proper covering. This year we have had considerable trouble through the practice of exposing food products. As soon as one merchant does this others soon follow the example. While the exposure of foods like vegetables, which require cooking before using, does not call for the rigid application of this regulation, the trouble is that once any foodstuffs are exposed, other products, like strawberries, cherries, candy, etc., are also added, and the regulation becomes impossible of enforcement and conditions unsatisfactory.

Some of the merchants object, as interfering with a good advertising medium, but one has only to consider the chaotic state of the streets, if all food-stores exposed these goods outside to see the necessity for rigid enforcement of the Regulation. Other merchants approve the Regulation, as the frequent handling to which exposed goods are subjected soon deteriorates their appearance and keeping qualities.

Restaurants

The Regulation requiring places where food is prepared and served on the premises to have hot running water installed was first enforced this year, resulting in 32 places having this improvement effected.

The necessity for a provision of this kind was thoroughly discussed in a article in "The World's Health" (Geneva). The writer reports that a well-known American Bacteriologist, Dr. Longstreet Taylor, investigating this question, found that 10 per cent. of guinea pigs injected with the remains of food on unwashed untensils used by tubercular person became tubercular.

Dr. Brian gives a method of washing glasses, these being the hardest form of crockery to sterilize, owing to breakages from using boiling water. He recommends a solution of hot water just below boiling-point containing soap and 5 per cent. of soda, claiming that glasses soaked in a solution of this kind are free from bacteria.

The most effective form of hot water heater was found to be a patent gas heater, which automatically lit the heater when the water was turned on, and heated only the running water. This dispensed with the water-tank, which was objectionable in summer, making the store too hot. However, the gas heater is expensive to install, and electric heaters are generally used.

Staff

The staff consists of the Chief Inspector and 2 Sub-Inspectors.

In 1918 there were 3 Sub-Inspectors besides the Chief Inspector.

In 1918 there were 1,344 places under inspection; today there are 2030; an increase of 686 or 51 per cent.

I would beg to accord my appreciation of the efficient manner in which Inspectors Foote and Mines have helped to cope with this increased amount of work.

Wholesalers

While, generally speaking, the wholesalers do not have goods exposed like retail stores or subjected to the same handling, they still require supervision.

The most frequent cause of complaint is "weevily" fruit, due to the activities of moths, which creep into boxes of dried fruit and lay their eggs. These eggs are incubated by the heat and humidity of summer and develop into larvae or weevil.

The Department issued a bulletin two years ago, pointing out the loss occasioned by these pests, and how it might be eliminated by exposing the goods to a refrigeration for a few days at a temperature about 20 degs. F. sufficiently low to kill the eggs and larvae in a few days. Since the publication of this bulletin the loss has been much reduced: practically all fruit requiring to be kept until the end of the season is exposed to refrigeration.

Canned goods also necessitate constant supervision. The external appearance to a large extent is an index to the condition of the contents. Cans which are swollen or leaky are unsound, and in view of the distressing occurances of Botulism of late years, it is very wise to run no risks, as all cases of poisoning have been traced to goods which gave some indication of deterioration. Fruits like pitted cherries seem to contain an acid to which cans are sensitive, particularly the lacquered cans, which, when rolled, develop minute cracks, leaving an opening for the decomposing material.

Acknowledgments

I beg to acknowledge the kindly assistance of Mr. Blackie, City Chemist, Mr. Forster, Dominion Analyst, Professor Butler, and members of the University Staff.

Respectfully submitted,

A. RIGBY,
Chief Food Inspector.

PREMISES AND IMPROVEMENTS

Description of Premises	Number of Places	New Modern	Cement Floors	Renovated	New Plumbing	Remodelled
Abattoirs	4	.....	.....	.....	.....	.....
Auction Rooms	3	.....	.....	.....	.....	.....
Bakeries	69	12	.....	15	1	1
Bars	44	.....	.....	18	6	2
Biscuit and Cereal Factories	3	.....	.....	.....	.....	1
Bottling Plants	10	3	.....	3	.....	1
Breweries	4	.....	.....	2	.....	.....
Butcher Shops	240	19	.....	36	5	6
Butter Rooms	4	1	.....	2	.....	.....
Candy Factories	30	3	.....	10	.....	4
Cold Storage Plants	7	.....	.....	1	.....	.....
Commission and Produce Houses	47	4	.....	4	.....	1
Cone Factories	2	1	.....	.....	.....	.....
Confectionery & Ice Cream Parlors	357	62	1	54	12	9
Delicatessen Shop	1	.....	.....	.....	.....	.....
Fish Stores (wholesale)	12	.....	.....	4	1	.....
Fruit Stores (wholesale)	44	7	.....	6	.....	1
General Stores	408	15	1	54	2	6
Grocers (retail)	246	18	.....	30	8	6
Grocers (wholesale)	32	.....	.....	2	1	.....
Hotels	39	.....	.....	26	5	1
Hawkers' Vehicles	97	.....	.....	70	.....	.....
Jam and Pickle Factories	12	2	.....	1	1	3
Markets	2	.....	.....	.....	.....	.....
Packing Houses	2	.....	.....	.....	.....	.....
Peanut Butter Factories	2	.....	.....	1	.....	1
Pop Corn Factories	3	1	.....	1	.....	1
Poultry Slaughter Houses	10	.....	.....	2	.....	.....
Restaurants	269	29	1	151	14	27
Railroad and Express Co.	5	.....	.....	.....	.....	.....
Sausage Factories	14	1	.....	5	.....	.....
Tea, Coffee and Spices Factories	6	.....	.....	.....	.....	.....
Yeast Factories	2	.....	.....	.....	.....	.....
	2030	178	3	498	56	71

FOOD CONDEMNATIONS

DESCRIPTION	January	February	March	April	May	June	July	August	September	October	November	December	Total
Beef	200	5	850	100	50	372	.....	50	.....	548	.....	650	2,825
Veal	.....	.....	266	232	1,404	.....	805	506	1,152	180	.....	325	4,870
Pork	220	.....	100	.....	150	156	.....	50	240	.....	.....	367	1,283
Mutton	.....	.....	25	.....	50	.....	139	139	118	.....	.....	100	571
Poultry	.....	.....	134	.....	.....	.....	.....	.....	.....	65	211	688	1,098
Fish	340	2,000	70	5,120	.....	1,380	204	.....	250	.....	120	300	9,784
Fresh Fruit	.....	.....	500	.....	.....	17,300	.....	.....	.....	11,999	.....	80	29,879
Dried Fruit	.....	.....	750	.....	.....	.....	.....	.....	.....	100	.....	220	1,070
Jam	.....	.....	.....	.....	.....	.....	75	.....	.....	.....	.....	300	375
Vegetables	.....	.....	4,100	.....	2,336	.....	6,535	1,600	.....	.....	.....	10,425	24,996
Butter	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eggs	.....	.....	.....	.....	.....	300	.....	250	.....	25	885	.....	1,460
Candy	100	45	.....	.....	10	.....	.....	.....	357	6,300	69	.....	6,881
Biscuits	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	965	965
Canned Goods	60	.....	180	1,416	.....	3,846	320	170	5,670	50	260	850	12,822
Sausage	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cereals	.....	.....	.....	.....	.....	.....	.....	330	.....	.....	.....	280	610
Nuts	.....	675	.....	550	.....	.....	.....	.....	65	500	40	50	1,880
Coffee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	.....	50
Cheese	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	.....	20
Baking Soda	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Game (Rabbits)	.....	.....	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
Pickles	.....	.....	.....	.....	.....	.....	.....	.....	410	.....	.....	.....	410
Spice	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sugar	500	.....	.....	120	100	.....	.....	320	200	.....	150	125	1,515
Syrup	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tea	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	.....	25
Cocoa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baking Powder	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous	.....	.....	.....	.....	.....	.....	.....	.....	140	.....	.....	.....	140
Milk and Cream	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	50
Total	1,420	2,725	6,995	7,538	4,100	23,354	8,078	3,415	8,602	19,767	1,830	15,775	103,599

FOOD INSPECTIONS

PREMISES	January	February	March	April	May	June	July	August	September	October	November	December	Total
Abattoirs and Packers	16	10	16	14	12	10	12	13	11	.....	2	14	130
Auction	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Bakeries	48	48	53	40	59	61	48	57	53	30	42	60	599
Bakery Vehicles	64	59	65	76	89	82	98	82	49	30	37	76	807
Biscuit and Cereal Factories	6	6	3	4	5	5	6	6	4	1	3	8	57
Breweries	13	6	17	18	18	15	21	21	12	5	11	22	179
Butcher Shops	268	211	284	220	237	253	240	226	211	149	192	229	2,720
Butter and Cheese	16	13	18	19	18	18	15	15	10	6	9	16	173
Candy Factories	42	40	42	35	35	42	38	35	30	8	24	37	408
Cold Storage Plants	15	14	11	14	15	13	11	15	8	3	6	13	138
Cone Factories	.....	.....	.....	1	3	1	.....	.....	1	3	1	1	11
Fish Stores	28	23	35	39	28	27	29	25	26	19	15	22	316
Fruit Stores	80	64	103	101	98	116	114	107	103	57	86	87	1,116
General Stores	322	298	373	333	353	349	354	316	232	325	327	340	3,922
Grocers	193	160	178	110	146	156	146	171	185	108	133	138	1,824
Hawkers' Vehicles	121	107	120	109	131	197	182	184	162	89	122	83	1,607
Hotel Kitchens	23	21	59	19	63	21	19	33	32	24	26	32	372
Ice Cream Parlors & Confety	215	184	245	240	251	277	206	248	237	141	198	242	2,684
Jam, Pickle & Spice Factory	14	8	14	7	9	17	12	16	10	5	8	13	133
Markets	4	8	6	4	4	6	4	6	8	.....	4	4	58
Packers	.....	2	1	.....	.....	1	.....	.....	.....	.....	.....	.....	4
Peanut Butter	.....	.....	1	.....	1	1	1	1	.....	.....	1	.....	6
Poultry Slaughter Houses	5	3	6	5	3	3	4	9	4	5	9	13	69
Produce and Commission	65	60	61	68	68	86	58	81	69	.....	40	64	720
Railway Cars	.....	.....	.....	.....	2	.....	3	13	4	.....	2	4	28
Restaurants & Lunch Counters	310	317	316	339	286	319	296	323	271	171	242	295	3,485
Sausage Factories	26	28	30	29	19	25	23	20	19	14	18	24	275
Special	115	97	120	121	111	143	125	163	147	46	85	152	1,425
Temperance Bars	9	6	7	9	28	15	23	32	19	14	25	26	213
Total	2,018	1,797	2,185	1,974	2,092	2,259	2,088	2,218	1,917	1,253	1,668	2,015	23,484
Notices to improve conditions	35	133	156	214	139	169	166	146	139	89	99	118	1,603

PROSECUTIONS

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Insanitary Premises	2	....	....	3 @ $8	....	2	1	....	1	....	....	1	10
Unsound Food	....	....	1	1 @ $28	....	....	....	....	....	....	....	....	2
Exposing Food to Contamination	....	....	....	....	....	1	1	....	....	....	....	....	2
No Permits	....	....	....	....	....	....	....	....	....	....	....	....	....
Amount of Fines	$26	....	$3	$52	....	$36	$28	....	$8	....	....	$5	$158
Amount of Costs	....	....	....	....	....	....	....	....	....	....	....	....	....

BACTERIOLOGIST'S REPORT

A. J. Douglas, Esq., M.D., CM., B.A.
Medical Health Officer.

Dear Sir:

I have the honour to submit herewith report on work performed in the Bacteriological Laboratory for the year ending December 31st, 1922.

The duties of City Bacteriologist were assumed by me in July, 1922, the work having been previously carried on by Dr. J. H. Leeming, recently resigned.

The work in this Laboratory was not confined to Bacteriology alone, but all departments of Clinical Pathology, with the exception of sectioning tissues, was undertaken.

It is my intention for the ensuing year to institute a new branch of work in this laboratory, namely, Blood Chemistry, which will comprise the estimaton of sugar, urea, and creatinin in the blood. This will provide a valuable aid to the physicians and surgeons in diagnosis and treatment, and will add a little to our source of revenue. The estimation of sugar in the blood undertaken by this laboratory should be especially popular at this time, since the new treatment for Diabetes seems to have met with such success. A blood sugar estimation furnishes the only dependable check on the progress of a case of Diabetes.

Following is a detailed account of the 19,089 examinations made in this Laboratory for 1922:—

Water

During the year 546 samples of water were tested. These samples were drawn from the following sources:

1. This laboratory, a daily test being made of the domestic supply.
2. Shoal Lake itself, the reservoir and various points in the City.
3. The Public Swimming Baths.
4. Private individuals; from summer camps and homes, etc.

The bacterial counts need no comment, as they adhered pretty closely to former years' records. Algae and vegetable matter in water were not troublesome.

Milk and Cream

Number of samples brought in for analysis totalled 1,093. Distribution and results follow:

1. Samples of milk, 807, and cream, 24, were taken officially by the Dairy Inspectors; of these 18 milk and 9 cream were below standard.

One hundred and seventy-nine bacterial counts were made, which ranged from 10,000 to 1,325,000 colonies per c.c.

2. City Bureau of Child Hygiene had 90 examinations of milk and 45 of cream.
3. Private individuals, 18 milk and 73 cream.

Diphtheria

The number of swabs (throat, nasal, and ear) for B. Diphtheria examination, reached a second high total, namely, 15,496; the highest total for one year being that of 1917, when 16,276 swabs were examined. The in-

crease for 1922 was due to the prevalence of Diphtheria in October and November, the numerous "carrier" cases, and the new practice instituted of swabbing all children before allowing them to go to summer camps for their vacation. In this way the "Carriers" are weeded out before they are congregated with the group, and so prevent an outbreak of Diphtheria in the camp.

Sputa Examinations for Tuberculosis

Specimens examined numbered 676 for the year, 80 having been found positive, or approximately 12%. These specimens were brought in by City Nurses and private patients sent in by physicians and surgeons.

Sera Tests for Typhoid Fever

Typhoid Fever cases in Winnipeg are few and far between. Forty-six requests were made for Widal examinations of blood, 10 of which were positive.

Urethral Pus

This includes all discharges from the genitalia to be examined for the presence of gonococci. Four hundred and fifty examinations were made for the year and 138 were positive for gonococci. Heretofor only a Methylene blue smear was made, but now all positive smears are checked by the new modification of the gram stain.

Urinalyses

Five hundred and sixty-two urinalyses were made—that is, general and microscopic and sugar estimations. Few requests were made for urea estimation and for the presence of indican, also cultures of urine and examination of sediment for Tubercle B.

Miscellaneous Tests

Two hundred and twenty examinations are recorded under this heading. This includes such specimens as breast milk, gastric contents, food, brought in by Mr. Rigby, and autogenous vaccines made for different skin conditions, etc.

Attached hereto is a table of the work for the year showing its distribution per month, and following is an additional table comparing the work of the past year with that of 1921:—

	1921	1922
Water	469	546
Milk	1,406	1,093
Swabs for Diphtheria	10,314	15,496
Sputa for Tuberculosis	721	676
Sear Tests for Typhoid	83	46
Urinalyses	550	562
Urethral Smears	547	450
Miscellaneous	216	220
	14,306	19,089

1922	Swabs for Diphtheria		Sputa for Tuberculosis		Typhoid		Urethral Smears		Urinalyses	Water	Milk	Miscellaneous	Total Examinations per month
		Pos.		Pos.		Pos.		Pos.					
January	807—	33	51—	5	1—	0	43—	14	66	31	62	15	1076
February	829—	51	70—	1	2—	0	15—	6	44	32	86	12	1090
March	876—	69	83—	9	9—	0	33—	6	52	32	186	32	1303
April	457—	53	84—	15	1—	0	33—	6	37	33	152	19	816
May	1226—	122	71—	13	2—	0	18—	6	32	76	98	13	1536
June	951—	63	37—	1	6—	1	28—	11	33	39	33	31	1158
July	540—	81	37—	7	2—	0	27—	11	35	50	100	10	801
August	702—	114	42—	8	4—	1	68—	23	45	66	71	19	1017
September	1763 —	209	53—	9	10—	5	46—	14	49	54	87	11	2073
October	3932—	434	61—	4	5—	2	39—	16	52	45	53	16	4203
November	2142—	321	52—	6	4—	1	64—	15	53	45	93	14	2467
December	1271—	298	35—	2	0—	0	36—	10	64	43	72	28	1549
Totals	15496—	1855	676—	80	46—	10	450—	138	562	546	1093	220	19089

Finally I desire to express my sincere appreciation to you, Sir, and the heads of the different Public Health departments for your kind co-operation, and to Miss Margaret Wilson and Mr. H. Robinson, for the faithful manner in which they have fulfilled their duties since my appointment.

Yours faithfully,

MANLY FINKELSTEIN, M.D.
City Bacteriologist

REPORT OF DENTAL CLINIC

1922	New Patients	Old Patients	Ward Patients	Impressions	Bites	Try-ins	Dentures	Extractions	General Anaesthetic	Local Anaesthetic	Treatments	X-Ray	Repairs	Examinations	Incisions	Prophylaxis	Fillings
January	154	170	62	18	16	19	17	720	14	143	16	18	36	88	1		
February	138	134	52	22	18	16	11	725	19	112	5	14	11	71	21		
March	162	163	69	20	19	21	25	807	22	117	8	7	21	121			
April	166	174	65	27	22	28	24	731	14	125	12	7	21	99	1		
May	141	222	80	49	37	47	28	682	10	131		22	16	35	89		
June	133	248	74	30	30	34	18	618	16	125	31	15	22	117			
July	128	272	67	47	38	42	23	732	16	121	21	16	28	127	1		
August	153	280	83	36	25	26	28	713	6	145	43	24	17	104	1		3
September	128	128	86	43	39	51	37	376	4	131	63	31	30	163	1		
October	149	362	117	59	60	74	41	472	28	133	91	41	27	202	1		36
November	133	304	133	42	31	53	43	483	9	158	106	35	29	182	4	6	30
December	136	269	131	20	27	30	25	485	13	168	86	38	19	202	2	23	41
Totals	1721	2717	1019	413	372	441	320	7344	163	1699	482	268	285	1501	120	29	110

REPORT OF DIVISION OF COMMUNICABLE DISEASES

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:

I beg to submit herewith report of work done by this Division during the year 1922.

The total number of communicable diseases reported, viz., 5,474, is slightly lower than the figures for 1921; this is largely accounted for by the large decrease in mumps.

Two hundred and thirty-eight deaths were recorded, against 240 in 1921, this being the lowest number of deaths from acute infectious diseases in 14 years.

In spite of the fact that there were two milk-borne outbreaks of Scarlet Fever, we are in a position to record fewer cases and deaths from this disease.

Diphtheria remains prevalent, and while we had a large increase in cases we are able to record fewer deaths; the type being exceedingly mild hampered us in our efforts to control.

Smallpox developed to unusual proportions between October and November, but was completely in hand before the end of December.

Our efforts at control of these diseases, particularly, kept us busy throughout the year.

We have not in any previous year had such a large number of Chickenpox cases recorded. As the disease prevailed coincidently with Smallpox, we experienced a busy time checking diagnosis of cases reported by schools, parents and others.

The large number of Diphtheria carriers reported necessitated assistance from the nurses of the Tuberculosis Visiting staff during the months of October and November.

The La Salle Hospital, formerly the La Salle Hotel, converted into temporary accommodation for Scarlet Fever patients, was closed in March.

House to house inspection was resorted to in certain districts (North end and Elmwood) during the months of May and September with reference to Smallpox and Scarlet Fever and again in October and November in the south and west ends of the city.

Under the heading of "Other Calls" in Inspectors' Reports this is clearly indicated.

The total number of visits made by Inspectors was 10,412, against 8,582 for 1921.

Houses quarantined was 4,305.

Quarantine inspections totalled 2,326 against 1,705 during 1921.

Other calls, 2,619 against 1,818 during 1921.

Cases investigated and reported on by Inspectors totalled 4,696; the difference between this and the total cases of infectious diseases reported is taken care of by my clearing cases reported by school nurses, secondary cases, institutional cases, or others reported on through the office.

Under the heading of "rooms fumigated" the total is 187.

Where disinfection of clothing, etc., by the Inspectors is done and the onus of cleansing the room is placed on the householder, the total is 1850.

Houses fumigated, 13; houses sprayed, 31; total, 44.

Special reports numbered 312; reports on sanitary defects reported to the Sanitary Division for attention totalled 32.

Tuberculosis Visiting Nurses

During the year the work of tuberculosis control has been proceeded with along the lines adopted since 1917.

Four visiting nurses are employed on this Division, visiting tuberculous patients, advanced cases and incipient, suspects and contacts.

Their duties are many and varied and with what success they are attended may at least be partly judged by results shown in our tuberculosis rates.

It is not within the scope of this report to show in detail the nature of their work, but mention may be made of the main headings under which the work is accomplished.

Chest clinics are conducted Thursdays and Fridays in the morning and Wednesday at night at the Winnipeg General Hospital. The preparing of patients, writing up history cards, filing records, etc., is performed by a nurse from this department.

The visiting of patients in their homes to instruct and keep records of the conduct of the case; the arranging of hospital and sanatorium accommodation for indigent patients; following up contacts, distribution of literature and material necessary in the conduct of the case; keeping in touch with the work of the Anti-tuberculosis Society and referring needy cases to the Social Welfare Commission are some of the main headings under which the nurses are constantly employed.

Two hundred and twenty cases were reported during the year; 19 of these were admitted to the King Edward Memorial Hospital for treatment from outside municipalities.

The distribution is as follows:

District 1	104
District 2	41
District 3	30
District 4	26
Outside cases	19
Total	220

Cases classified positive and suspects and summary of cases recorded in districts:

District I.

		Positive	Clinically Positive	Suspects and Contacts
New cases	104	88	15	
Visiting list	114	44	36	34
Non-visiting list	153	94	23	36
Patients in Ninette	64	43	13	8
Patients in King Edward Hosp.	16	11	5	

District II.

		Positive	Clinically Positive	Suspects and Contacts
New cases	41	15	2	
Visiting list	107	19	23	65
Non-visiting list	45	9	23	13
Patients in Ninette	20	17	3	
Patients in King Edward Hosp...	12	5	7	

District III.

		Positive	Clinically Positive	Suspects and Contacts
New cases	30	20	10	
Visiting list	101	19	50	32
Non-visiting list	44	10	34	
Patients in Ninette	10	8	2	
Patients in King Edward Hosp...	15	12	3	

District IV.

		Positive	Clinically Positive	Suspects and Contacts
New cases	17			
Visiting list	85	19	22	44
Non-visiting list	38	4	13	21
Patients in Ninette	5	4	1	
Patients in King Edward Hosp...	7			

Total attendance at the Winnipeg General Hospital Chest Clinic for the year was 840; of this number 311 were new examinations.

Six thousand and eighty visits were made to homes of patients as compared with 7,273 during 1921.

On behalf of patients 630 calls were made whilst under the heading "other calls" 375 visits were made, these being principally in the nature of swabbing Diphtheria carriers during the last three months of the year.

Arrangements were made to hospitalize 27 advanced cases; 16 early cases were outfitted and sent to Ninette Sanatorium.

The Anti-tuberculosis Society has continued to supply bedding, clothing, etc., to needy patients; also to outfit patients for Ninette and to render assistance in cases not dealt with through the Social Welfare Commission.

The following supplies have been provided free through the Department: Refills, 7,377; Handkerchiefs, 6,836; Pocket flasks, 396; Holders, 38; Specimen boxes, 262; alcohol, cotton, gauze, bandages and disinfectants where required.

Eighty-one patients were on the free milk list for all or part of the year; 15,454 quarts were supplied as compared with 13,467 during 1921.

In reviewing the work accomplished by the nurses for the year we are satisfied that all has been done that is within their power to do to reach the tuberculous patients in the district allotted to them. There is still a disposition on the part of many to conceal their trouble and doctors are prevailed upon not to, or it may be that they do not consider it necessary to report. This is borne out by the fact that death registration is occasionally the first intimation we have of a case. This is wrong and the conditions under which many of the patients live are far from satisfactory. Something more than cold officialism is necessary if we are to succeed in our attempt at control of tuberculosis. We believe that much could be done by outside co-operation and philanthropic effort.

Throughout the year the office staff, Inspectors and Nurses have applied themselves vigorously to the work of this Division.

Respectfully submitted,

(Signed) W. J. T. WATT,
Chief, Division of Communicable Diseases

COMMUNICABLE DISEASES, 1922

DISEASES	Jan.		Feb.		Mar.		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Totals 1922		Totals 1921	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Typhoid Fever	..	..	3	....	2	..	1	1	..	..	1	..	2	..	2	1	18	1	4	....	7	....	.....	.....	40	3	49	10
Smallpox	..	..	..	....	..	..	3	..	2	..	1	..	..	..	1	..	1	..	6	....	44	....	17	....	75	.....	71	.....
Chickenpox	77	....	43	..	93	..	56	..	60	..	78	..	23	..	6	..	12	....	68	..	252	....	125	..	893	..	813	....
Measles	3	..	11	.....	47	..	74	1	183	..	178	1	76	1	24	..	2	..	5	.....	37	.....	103	....	763	3	157	.....
Scarlet Fever	66	1	50	1	60	1	57	1	60	..	48	3	41	1	36	..	106	....	146	1	119	1	95	1	884	11	1171	28
Whooping Cough	24	.....	17	....	70	1	52	1	35	1	76	1	17	..	33	3	52	..	41	1	42	1	17	3	476	12	124	7
Mumps	19	..	19	..	21	..	14	..	10	..	7	..	1	..	1	..	2	..	1	....	1	.....	2	.....	98	..	1649	1
Diphtheria	96	6	103	7	105	3	72	3	103	1	87	2	96	2	93	3	120	5	176	7	193	3	151	3	1395	45	1084	48
Diphtheria Carriers	11	..	14	..	12	..	11	..	49	..	10	..	10	..	28	..	42	..	134	..	79	..	37	..	437	..	247	..
Erysipelas	21	1	12	1	8	..	14	..	3	..	3	..	5	..	2	..	4	..	3	..	4	..	8	1	88	3	57	5
Tuberculosis, Pul.	19	9	25	8	14	4	20	14	29	11	16	11	21	7	13	13	14	2	17	7	14	7	20	12	221	105	220	100
Poliomyelitis, A.	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	6	1
Meningitis, C.S.	..	..	2	2	..	..	..	..	..	..	1	..	1	1	1	1	..	..	..	..	1	1	..	..	6	5	11	8
Influenza	8	4	7	3	39	14	17	6	9	7	1	1	..	2	1	1	..	..	2	1	1	2	2	1	87	42	21	15
Puerperal Fever	..	..	1	1	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	4	4
Encephalitis, L.	1	..	..	1	2	..	..	1	..	..	2	2	..	..	..	..	2	1	..	..	..	..	..	..	7	5	26	13
Totals	345	21	307	24	473	23	392	29	544	21	509	21	294	15	241	22	375	9	603	17	814	15	577	21	5474	238	5710	240

COMMUNICABLE DISEASE RATES

DISEASES	1922				1921				1920			
	Cases	Deaths	Rate per 100,000	Rate per 100 Cases	Cases	Deaths	Rate per 100,000	Rate per 100 Cases	Cases	Deaths	Rate per 100,000	Rate per 100 Cases
Tuberculosis, all forms												
Tuberculosis of Lungs	221	105	52.7	47.5	220	100	50.8	45.4	217	138	71.7	65.
Diphtheria	1,395	45	22.6	3.2	1,084	48	24.3	4.4	1,165	84	43.6	7.20
Influenza	88	43	14.1	48.8	21	15	7.6	71.4	426	91	47.2	21.1
Whooping Cough	476	12	6.02	2.52	124	7	3.5	5.6	440	24	12.5	5.45
Scarlet Fever	884	11	5.52	1.24	1,171	28	14.2	2.3	2,697	76	39.5	2.85
Encephalitis Lethargica	7	5	3.5	71.4	26	13	6.6	50.	34	23	11.9	67.6
Cerebro Spinal Meningitis	6	5			11	8			5	5		
Puerperal Fever	3	3			4	4			14	14		
Erysipelas	88	3			57	5			67	11	5.66	16.3
Measles	763	3	1.5	.39	157							
Typhoid Fever	40	3	1.5	7.5	49	10	50.7	20.4	56	11	5.66	19.6
Anterior Poliomyelitis	1	1			6	1			47	12	6.23	26.6
Smallpox	75				71				37			
Chickenpox	893				813				421			
Diphtheria Carriers	437				247				202			
Mumps	98				1,649				126			

SCARLET FEVER, 1922

	January	February	March	April	May	June	July	August	September	October	November	December	1922 Totals	1921 Totals
Cases	66	50	60	57	60	48	41	36	106	146	119	95	884	1,171
Secondary Cases	4	4	5	4	11	.....	6	1	7	29	15	22	108	185
Return Cases	2	2	3	1	.....	.....	1	.....	1	3	11	8	32	21
Unrecognized Cases	2	2	.....	2	4	3	2	1	8	12	13	7	56	55
Military Cases	.....	.....	3	1	1	.....	.....	.....	.....	.....	.....	2	7	6
Institutional Cases	5	4	4	1	1	5	.....	.....	1	2	11	.....	34	32
Outside Cases	10	3	1	4	17	3	6	6	7	9	5	5	76	117
Public School Children	17	18	14	19	14	22	14	12	68	62	54	42	356	
Public School Children, Secondary	2	2	.....	1	2	.....	3	.....	5	15	14	8	52	
Parochial Schools	3	3	10	3	9	1	.....	2	7	4	3	4	51	
Under School Age	20	12	13	18	18	20	13	13	19	37	37	22	242	
Under School Age, Secondary	3	4	5	4	8	.....	1	1	4	8	7	13	58	
Adults	15	10	18	12	6	4	3	4	10	9	11	14	116	
Secondary Cases, Adults	.....	1	.....	.....	1	.....	2	.....	.....	2	2	2	10	

DIPHTHERIA, 1922

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Diphtheria Cases	96	103	105	72	103	87	96	93	120	176	193	151	1,395
Diphtheria Carriers	11	14	12	11	49	10	10	28	42	134	79	37	437
Secondary Cases	13	8	4	3	4	9	15	13	12	20	17	21	131
Return Cases	....	1	....	....	1	3	1	1	2	....	....	2	11
Unrecognized Cases	5	1	21	....	....	1	2	1	5	6	....	7	30
Outside Cases	6	6	7	7	18	6	10	16	14	24	10	11	135
Military Cases	....	....	....	1	....	....	....	....	....	....	2	....	3
Institutional Cases	11	9	8	7	1	4	7	5	3	6	16	13	90
Institutional Carriers	....	1	....	2	13	....	....	....	....	....	1	2	19

COMMUNICABLE DISEASES INSPECTORS' REPORT, 1922

	January	February	March	April	May	June	July	August	September	October	November	December	1922 Totals	1921 Totals
Number of Visits	607	568	803	691	1,163	895	506	497	977	1,419	1,297	989	10,412	8,582
Houses Quarantined	245	239	357	284	408	405	206	194	302	557	595	513	4,305	4,247
Quarantines Raised	60	59	92	100	103	174	108	68	52	71	121	159	1,162	812
Quarantines Inspected	197	156	174	147	237	162	99	99	220	414	260	161	2,326	1,705
Other Calls	105	114	180	160	415	154	98	136	403	377	321	156	2,619	1,818
New Cases Investigated	280	244	410	306	458	447	231	211	354	590	628	537	4,696	4,631
Rooms Fumigated	16	38	25	13	7	6	3	8	3	11	33	24	187	
Rooms Disinfected	114	110	134	136	141	129	105	117	170	241	226	227	1,850	2,208
Houses Fumigated			2				1	3	2		5	1	13	35
Houses Sprayed		1	8				2	3	8	7			31	
Special Reports	22	14	16	23	38	20	18	11	21	38	42	49	312	355
Sanitary Defects Reported	3	2	1	3	4	4	3	4	1	1	3	3	32	60

TUBERCULOSIS NURSES' REPORT, 1922

	January	February	March	April	May	June	July	August	September	October	November	December	1922 Totals	1921 Totals
Number of Visits	562	477	648	473	516	514	455	470	571	497	447	450	6,080	7,273
To Old Cases	478	388	569	402	433	439	421	404	483	358	247	285	4,907	6,237
To New Cases	16	29	9	13	24	7	12	6	9	14	9	20	168	166
On Behalf of Patients	68	60	70	58	58	65	22	60	79	49	30	11	630	835
Other Calls	...	.....	.....	.....	1	3	...	.....	.....	76	161	134	375	25
Patients sent to King Edward Hospital	3	3	2	2	2	1	3	...	4	1	.....	2	27	36
Patients sent to Ninette Sanatorium	2	4	1	1	2	1	.....	1	2	.....	1	1	16	27
Tuberculosis Clinic—														
Old Cases	72	50	63	49	44	38	29	37	28	36	39	44	529	613
New Cases	36	33	37	24	32	28	22	10	21	23	19	26	311	404
Suspects	18	12	8	14	10	9	3	6	4	2	1	1	90	.....

SCHOOL NOTICES—COMMUNICABLE DISEASES, 1922

	Smallpox	Chickenpox	Measles	Scarlet Fever	Whooping Cough	Mumps	Diphtheria
DISTRICT I.							
Earl Grey	2	40	.....	22	3	.....	25
Gladstone	.....	7	.....	10	9	5	8
Grosvenor	.....	9	.....	4	.....	.....	.....
Fort Rouge	.....	2	2	1	15	.....	8
Julia Clarke	.....	.....	.....	1	.....	.....	.....
Kelvin Tech.	9	8	2	18	2	.....	9
La Verendrye	3	50	.....	19	6	.....	8
Lord Roberts	3	48	3	18	6	3	12
River Heights	.....	.....	1	10	1	.....	3
River View	.....	30	9	6	1	.....	5
St. Ignatius	.....	3	.....	6	.....	.....	.....
St. Mary's Academy	.....	1	1	.....	.....	.....	2
Sir John Franklin	.....	.....	.....	2	.....	.....	.....
DISTRICT II.							
Alexandra	.....	5	.....	9	.....	.....	5
Carlton	.....	3	3	9	1	.....	13
Isbister	.....	3	1	15	3	4	24
Manitoba University	1	1	.....	4	.....	.....	8
St. Mary's	.....	1	2	16	2	.....	10
DISTRICT III.							
General Wolfe	.....	10	.....	14	6	.....	8
Greenway	2	25	2	24	21	5	19
Isaac Brock	1	3	3	19	13	3	27
John M. King	.....	8	4	11	8	2	40
Laura Secord	10	45	1	12	4	.....	15
Mulvey	.....	43	2	18	10	.....	16
Principal Sparling	.....	2	.....	9	2	1	21
St. Edward's	1	.....	5	5	.....	5	5
Wellington	7	1	4	2	1	4	23
Wolseley	.....	4	.....	9	6	.....	7
DISTRICT IV.							
Albert	2	5	2	10	.....	.....	16
Argyle	1	2	3	4	1	.....	38
Cecil Rhodes	.....	14	.....	11	2	.....	17
Dufferin	.....	33	2	16	9	2	22
Kindergarten	.....	4	1	2	2	.....	5
Maple Leaf	.....	8	.....	19	.....	.....	16
Model	.....	1	.....	4	2	6	5
Montcalm	.....	9	3	18	18	.....	15
Normal	.....	.....	.....	1	.....	1	9
Pinkham	.....	4	.....	19	2	1	19
Somerset	1	9	2	41	2	8	20
Victoria	.....	6	.....	11	2	1	16

SCHOOL NOTICES—COMMUNICABLE DISEASES, 1922—Contd.

	Smallpox	Chickenpox	Measles	Scarlet Fever	Whooping Cough	Mumps	Diphtheria
DISTRICT V.							
Aberdeen		34	23	13	9	1	75
Hebrew Free		14	10	9	3	.....	19
King Edward	.....	4	12	12	6	1	61
David Livingstone	.....	.....	.....	.....	.....	.....	3
Norquay	1	3	36	37	7	1	72
Strathcona		28	70	18	2	3	76
Wm. Whyte		24	18	21	4	2	86
DISTRICT VI.							
Champlain	.....	10	1	11	2	.....	13
Faraday	.....	1	.....	.....	.....	.....	2
Florence Nightingale	1	4	.....	.....	3	1	2
Isaac Newton		2	13	7	2	2	36
Lord Nelson		13	2	.....	3	.....	14
Machray		12	69	20	8	.....	139
Luxton		14	22	8	2	.....	71
Margaret Scott		10	23	13	4	.....	72
Ralph Brown		6	58	22	3	1	33
St. John's College		.....	.....	1	.....	5	.....
St. John's Technical		7	12	16	1	.....	38
St. Joseph's		3	1	2	.....	.....	35
DISTRICT VII.							
Anna Gibson		18	2	10	.....	.....	1
Elmwood		47	1	4	3	.....	8
George V.		7	1	2	1	.....	1
Lord Selkirk		11	8	27	14	1	32
Sir Sam Steele		4	1	8	.....	.....	2

REPORT OF SCHOOL MEDICAL INSPECTION SERVICE ON COMMUNICABLE DISEASES
Affecting Schools January 1st to December 31st, 1922

Furnished by courtesy of Dr. Mary Crawford

DISEASES	School Children	Cases in Homes Affecting Schools	Totals	Per cent. of No. of School Children Discovered by Nurses
Scarlet Fever	341	227	568	78 or 22.8%
Measles	271	111	382	118 or 43.5%
German Measles	21	.....	21	6 or 28.5%
Mumps	41	9	50	37 or 90%
Chickenpox	526	83	609	366 or 60%
Smallpox	27	16	43	4 or 14.8%
Whooping Cough	169	54	223	134 or 79%
Tuberculosis (Pulmonary)	1	1	2	1 or 50%
Diphtheria, Clinical, Throat	434	338	772	32 or 7.3%
Diphtheria, Clinical, Nose	5	.....	5	5 or 100%
Diphtheria Carriers—Throat, Nose, Ear	297	52	349	314 or 90%
Tubercular Meningitis	2	1	3	0
Influenza	37	4	41	24 or 64.8%
Trachoma	1	.....	1	0
Totals	2,173	896	3,069	1,119 or 51.49%

BUREAU OF CHILD HYGIENE

A. J. Douglas, Esq., M. D.,
Medical Health Officer.

Dear Sir:

I have the honor to submit herewith the report of the Bureau of Child Hygiene for the year 1922.

Nearly every month the nurses reported an unusual number of minor ailments, and there was also considerable prevalence of a mild type of influenza. It is therefore gratifying to report that the infant mortality rate was 88.8 per 1,000 live births, the second lowest in the city's records, the 1921 rate of 78.1 being the lowest.

The total live births numbered 5,629, against 6,029 for 1921, a reduction of 400, and the infant deaths under one year totalled 500 against 471 for 1921, an increase of 29.

A comparison of the causes of death shows that the chief increases were due to diarrhoeal and acute communicable diseases, but, as already mentioned, 1921 was our most favorable year, and the 1922 rates may be regarded as satisfactory when compared with previous years.

As the vital statistics are now kept according to the nurses' sections, and the number of births in a section ranges between 191 (excluding one this year with only 66 births) and 650 births, the various rates have been computed on a basis of 100 live births and are given correct to the first decimal place. Such rates give a truer conception of the actual conditions prevailing in a section, as, when given on the basis of 1,000 births, the rates tend to give an exaggerated importance to small variations.

The following table summarizes the causes of infant deaths for our three best years and our worst:

Infant Deaths per 100 Live Births

	1922	1921	1918	1912
Malformations and diseases of early infancy	3.9	3.8	3.5	5.2
Diseases of digestive system	2.1	1.4	2.1	8.2
Diseases of respiratory system	1.3	1.5	1.3	3.0
Acute communicable diseases	.4	.1	1.3	.6
All other diseases	1.1	1.0	1.0	3.7
Deaths per 100 live births	8.8	7.8	9.2	20.7

Disease of Early Infancy

These causes again show a slight advance, and they continue to be the chief cause of death since diarrhoeal diseases fell to second place in 1915. They accounted for 3.9 deaths per 100 live births against 3.8 for 1921.

By sections the 1922 rates vary from 5.2 deaths per 100 live births in Section 1 East, (Fort Rouge, Red River, west to Pembina and Osborne) to 2.3 in Section VI east; (North End, Red River west to Andrews, Burrows north to City Limits).

Deaths from diseases of early infancy mostly affect infants born in the better class districts, the mothers being British or Canadian by birth. Infants born of mothers from Southern and Central Europe apparently possess greater vitality and survive the first two months of life with a lower mortality rate than the infants of Canadian and British mothers. At about three months old, however, incorrect feeding raises the mortality rates of the former above

the latter, but the difference has been reduced year by year, as the Bureau, by its educational work, has won the confidence of our foreign-born citizens and taught them the axioms of infant care and hygiene. As a matter of fact, the mortality amongst infants born of mothers from Southern and Central Europe was lower in 1922 than that of infants born of Canadian mothers, but this will be referred to later.

Pre-natal education for Canadian and British mothers is essential if the high mortality from diseases of early infancy is to be overcome, but under the stress of present financial difficulties the Bureau cannot organize pre-natal clinics as is much desired. The nurses carry on an educational campaign during their visiting rounds, and are constantly consulted by expectant mothers. These cases are recorded and tabulated so that comparative statistics may be made showing the mortality amongst infants of mothers who received pre-natal education from the nurses and amongst infants of mothers who did not. As this system of records was but recently organized, it is too early to publish the results.

Diseases of Digestive System

In 1922 there were 2.1 deaths per 100 live births from these causes, against 1.4 for 1921, an expected increase in view of the amount of sickness during the late summer months. However, this rate is our third lowest for diarrhoeal diseases, so it may be regarded as satisfactory.

The sectional rates vary from 3.7 deaths per 100 live births in Section V South-west (C.P.R. tracks North to Selkirk Avenue, Main Street West to City Limits) to .7 in I East; the latter rate is, of course, affected by the high mortality rate (5.2) from diseases of early infancy, referred to in a previous paragraph.

The bulk of deaths from diseases of the digestive system occur in the sections occupied by citizens of foreign birth and occurs mostly in babies over three months of age. Many of these parents begin at about this time to feed an infant foods suitable for a child of two, often with dire results, but the reduction in the death rate of infants born of mothers from Southern and Central Europe has been astonishing (see p. 117), and shows the value of educational work in raising their standard of hygiene and their quick assimilation of Canadian ideas.

Diseases of Respiratory System

Infant deaths from this group of diseases have varied from 3.0 per 100 live births in 1912 to 1.3 in 1918 and 1922. The rate was 1.5 in 1921.

As mentioned in previous reports, the spot map of respiratory diseases usually shows a cluster of deaths in the sections where overcrowding prevails and the value of fresh air is little understood, but in 1922 the deaths are more evenly distributed, as there was no excessive mortality from these causes in the sections occupied by poorer citizens of foreign birth. Climatic conditions have a bearing on this group of diseases and control is difficult other than through educational efforts.

Acute Communicable Diseases

Measles, Scarlet Fever, Whooping Cough, Diphtheria and Influenza combined accounted for .4 deaths per 100 live births, which is somewhat lower than the average, but higher than the rate for 1921 (.1 per 100 births) which was the lowest on record for these causes. Influenza caused 9 deaths; whooping cough, 7; diphtheria, 5; measles, 2; and scarlet fever, 1; a total of 24. District VI (Burrows Avenue to Northern City Limits) was mostly affected.

Age at Death

If we exclude Section IV. East (Southern half of Point Douglas), which showed an extraordinary condition during 1922, the greater number of deaths of infants under one week of age takes place in the better class districts, as would be expected from the previous paragraphs on diseases of early infancy. This condition practically holds true for ages up to three months, after which there is a higher mortality amongst infants of foreign-born mothers.

Infant Deaths According to Sections of City

The following tabulation shows how the infant mortality varies in different parts of the city:

Infant Deaths per 100 Live Births

Section	Location	Sections 1922	Sections 1921	Districts 1922	Districts 1921	Districts 1920
I. West	(Doncaster St. to Pembina Hghwy)	9.8*	6.7	11.0	6.9	6.7
I. East	(Pembina Highway to Red River)	9.8†	7.2			
II.	(Red River to Spence St.	9.0	8.2	9.0	8.2	8.5
III. South	(Assiniboine River to Ellice Ave.)	7.6°	6.3	8.6	6.3	7.9
III. North	(Ellice Ave. to Notre Dame Ave.)	7.6	6.2			
IV. West	(Notre Dame Ave. to C.P.Rly.)	10.8	6.9	10.9	8.5	14.3
IV. Centre	(Sherbrooke St. to Main St.)	10.2	10.4			
IV. East	(Main St. to Red River)	16.6	7.7			
V. East	(Red River to Main St.)	8.9	9.8	9.4	8.8	14.0
V. South	(C.P.R. Tracks to Selkirk Ave.)	10.4	7.3			
V. North	(Selkirk Ave. to Burrows Ave.)	9.0	9.9			
VI. West	(Keewatin St. east to Nos. 500)	9.2	10.1	8.1	9.0	11.0
VI. East	(Nos. 199 east to Red River)	6.8	8.1			
VII.	(Harbison Ave. to Nairn Ave.)	8.4	5.5	8.5	5.5	9.8

* Including Children's Home, 11.0.
† Including Children's Aid, 11.0.
° Including Grace Hospital, 9.3.

The highest rate, 16.6 per 100 live births, was in Section IV East, where in 1921 the rate was only 7.7. The conditions causing this are unknown, but the following are the actual figures. Fortunately this is a small section, and there were only a few births:—

1922..... 66 live births 11 infant deaths (8 under 1 week)
1921..... 91 live births 7 infant deaths (3 under 1 week)

There is considerable variation between the rates for 1921 and 1922, but the high rates, in what are usually regarded as the better portions of the city, are surprising.

Infant Mortality According to Birthplace of Mother

The following table shows that the mortality amongst infants born of mothers from Southern and Central Europe, 9.4 per 100 live births, was lower than that amongst infants born of Canadian mothers, 10.3 per 100 live births. This is the first year that this happened and is brought about by the large increase in the Canadian death rate as compared with 1921. The mortality amongst infants born of British mothers is 7.0 per 100 live births, and of British and Canadian combined, 8.5.

Rates per 100 Live Births

	1922	1921	1920	1919	1918	1917	1913
Canadian	10.3	6.8	8.9	10.3	7.7	8.6	11.
British	7.0	7.9	9.2	9.6	7.4	8.9	12.5
Southern and Central European..	9.4	9.0	14.2	13.2	11.5	13.0	3.72

The rate amongst infants born of Scandinavian mothers again shows an astonishing increase, 13.5 per 100 live births, against 10.2 for 1921. The infant mortality amongst the Scandinavians dropped from 11.6 in 1913 to 4.6 in 1916 (the lowest recorded of any nationality), and since then has increased almost every year, until now it is the highest rate of all nationalities. Here is a tabulation of the births, deaths and rates. The figures are significant:—

Births and Deaths of Infants Born of Scandinavian Mothers

Year	Live Births	Deaths Under One Year	Rate per 100 Live Births
1913	214	25	11.6
1914	171	15	8.8
1915	180	11	6.1
1916	173	8	4.6
1917	138	8	5.8
1918	133	10	7.5
1919	125	9	7.2
1920	133	13	9.8
1921	157	16	10.2
1922	89	12	13.5

Babies' Clinic

The clinic suffered a grievous loss in the death of Dr. C. C. Field on January 29th. Dr. Field had acted as attending physician since January, 1920, and had maintained the high standard of excellence inaugurated by Dr. Rorke and the late Dr. Richardson, and gained the confidence of the mothers attending the clinic by his kindliness and friendly manner.

Dr. F. G. Schwalm was appointed to the vacancy and attended the clinic in the mornings, alternating with Dr. R. F. Rorke.

The attendance at the clinic was the highest so far recorded, 7,225, against 6,450 for 1921. By months the distribution is as follows:

	Jan.	Feb.	Mch.	Apl.	May	Jun.	Jly.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1922	583	454	666	657	652	584	560	770	746	545	625	383	7,225
1921	450	486	574	516	599	543	589	634	544	474	492	549	6,450

In each year the highest attendance occurred during August, diarrhoeal diseases causing increased sickness; but 1922 showed a greater attendance during nearly every month, in spite of the reduction of 400 in the live births.

Cases came from various sections and districts of the city as follows:

District	I.		II.	III.		IV.			V.			VI.		VII.	City	Non-Res.	Tot.
Section	W.	E.		S.	N.	W.	C.	E.	E.	S.	N.	W.	E.				
1922	29	31	44	50	70	42	77	21	48	119	58	74	131	60	854	16	870
	60		44	120		140			225			205		60			
1921	48		42	115		130			174			158		56	710	60	770

The table shows an increase of 144 city patients, who have been accommodated by restricting attendance of non-residents from municipalities where baby clinics are in operation. Non-resident cases numbered 16, or 1.8%. Before restrictions upon such attendance were made, non-resident cases amounted to 14%, and our own citizens were inconvenienced in addition to bearing unnecessary expense.

The mortality amongst babies attending the clinic is exceedingly low, but it is not easy to present rates owing to the wide variance in the number of times a patient attends the clinic. Sometimes a baby is brought frequently over a period of several months; others are brought for a consultation and pay but a few visits. It is consequently difficult to reach a basis upon which to form correct calculations.

Milk Dispensary

The number of feedings prepared totalled 28,586, against 42,851 for 1921, a reduction of 14,265. Feedings prepared for the Children's Hospital numbered 7,981, against 8,509 for 1921.

Between the years 1915 and 1920 the policy of the Bureau as regards the distribution of feedings was rather a liberal one, and between forty and sixty thousand feedings a year were prepared and distributed through sub-stations in various parts of the city. In 1921 a new policy was inaugurated, mothers being instructed by the nurses to prepare the feedings at home. A careful check of the mortality rates showed convincingly that the policy was sound, and in 1922 more substantial reductions in the number of feedings prepared were made, with a continued low mortality rate, so it may be assumed that the experiment of home instruction in the preparation of feedings is successful. There was an increase in deaths from diarrhoeal diseases in 1922 as compared with 1921; but, as already mentioned, the rate for 1921 was exceptionally low, and the 1922 rate is satisfactory as compared with previous years. This cause of death will be very carefully watched during 1923, as there is no desire to curtail the preparations of feedings at the Depot whenever they are considered necessary in the best interests of the child.

The feedings prepared ranged from 74 in December to 128 in September. Paid feedings numbered 19,223, for which $2,500.25 was received, the charges varying from 10 to 25 cents a day. The average amount collected per feeding was 13.0 cents. There were 9,363 free feedings. The Children's Hospital paid $1,426.65 for the feedings prepared for their patients.

Child Welfare Nurses

No increase was made in the nursing staff during the year, the number of nurses remaining at fourteen.

Visits paid to babies numbered 46,790, against 47,125 for 1921, the slight decrease being due to fewer days on duty through leave of absence, due to sickness of the nurses.

Of the 4,519 live births to resident mothers, the nurses visited 3,606, or 80% against 77% for 1921. In Districts I to III there are five nurses; in Districts IV to VII, eight. In the latter districts practically every registered birth is visited; in the former districts about 60% of the births are visited. Treatments given numbered 2,051, against 2,024 for 1921.

Each nurse has charge of her own section and is responsible for its condition. Every section has its own problems, and what is true of one section does not hold for another. Winnipeg's population is of such a cosmopolitan character that this phase of the work is probably more intensified than in older established cities, but the success which has marked the Bureau's work leaves no doubt as to its acceptance by all classes of citizens.

The nurses are paying increasing attention to pre-natal advice to mothers, and the number of such consultations rose to 667, as compared with 518 for 1921. A special report form for these cases was prepared, and definite statistics as to results of our educational campaign along these lines will be available for future reports.

Infants' Homes were regularly visited and any infractions of the regulations reported to the Provincial Board of Health. The Department does not approve of such homes, but under existing conditions nothing better can be substituted, and we have to depend upon strict supervision to protect their proteges.

Nurses Adair and Whittick resigned to be married and were replaced by Nurses Brandson and Hazelwood. Nurses Moule and Montgomery were engaged on the temporary staff, replacing Nurse McCallum, who contracted a severe illness and was compelled to give up duty for several periods. Miss McCallum is one of our most popular nurses and was greatly missed in her section by families she had visited for several years. The staff joins me in wishing her a speedy return to health and duty.

The untiring devotion of our nurses is worthy of the highest praise; no storm is too severe, snow too deep, or sun too hot, to hinder their answering a sick call after hours, Sundays and holidays, and I again wish to place on record my appreciation of their service on behalf of our youngest citizens.

Conclusion

This year's report again shows, even in a more marked respect than previous ones, the necessity for a vigorous pre-natal educational campaign and the establishment of clinics for expectant mothers, especially those of British and Canadian birth. When we learn that in one section, mainly populated by citizens of these nationalities, 54% of the infants who died lived a week or less, and 72% died before reaching three months of age, and that in a section favored by our foreign-born citizens only 18% of the infants who died were aged a week or less, and 43% aged three months or less, we cannot but feel that the situation requires immediate attention; yet, as already pointed out, it is to private organizations we must look for effective work under present conditions.

The curtailing of the preparation of feedings at the Depot will be carefully checked up during the present year in order to learn if the change has any bearing on the mortality from diarrhoeal diseases. As far as can be determined from last year's records, the change was not responsible for the increased mortality from this cause, the clinic records showing abundant proof of the effectiveness of the present system. The reduction of the number of feedings, of course, results in considerable economy of funds, but this is naturally of secondary importance.

Respectfully submitted,

A. G. LAWRENCE,
Manager, Bureau of Child Hygiene.

BABIES' MILK DEPOT REPORT FOR YEAR 1922

1922	Total attendance at Clinic	Cases attending for first time	Cases on Dispensary List at 1st of month (including Children's Hospital)	No. OF CASES AND FEEDINGS								CASH COLLECTED	
				New cases dispensed for first time	Total cases added during month	Total cases discontinued	Children's Hospital Feedings	MILK DEPOT			Grand Total Feedings (including Children's Hospital)	Cash collected for Dispensary Feedings	Cash collected for Children's Hospital Feedings
								Paid Feedings	Free Feedings	Total Feedings (excluding Children's Hospital)			
January	583	72	106	24	40	34	674	1,553	1,023	2,576	3,250	$292.75	$115.10
February	451	66	104	29	38	37	557	1,357	903	2,260	2,817	180.05	94.90
March	666	96	113	39	62	47	724	1,610	1,251	2,861	3,585	209.90	116.70
April	657	81	108	30	34	34	581	1,376	1,388	2,764	3,345	197.05	86.79
May	652	62	109	26	33	43	661	1,635	993	2,628	3,289	199.60	104.07
June	584	64	98	16	22	35	499	1,561	676	2,237	2,736	232.80	78.86
July	560	70	80	34	37	39	552	1,637	632	2,269	2,821	141.30	115.00
August	770	99	70	79	87	62	865	2,085	517	2,602	3,467	144.15	169.03
September	746	97	88	65	81	82	762	2,261	573	2,834	3,596	264.20	167.31
October	545	67	77	24	35	54	621	1,651	445	2,096	2,717	232.80	139.74
November	625	56	77	26	38	61	703	1,335	455	1,790	2,493	242.25	117.75
December	383	40	79	22	29	25	782	1,162	507	1,669	2,451	163.40	121.40
Totals	7,225	870	Av.92	414	536	553	7,981	19,223	9,363	28,586	36,567	$2,500.25	$1,426.65

BUREAU OF CHILD HYGIENE REPORT FOR 1922

1922	No. of days on duty	No. of Visits to Babies	Deaths of Infants visited more than once	Visits to Babies for first time	Feeding at time of First Visit		No. of Calls to Sick Babies	Telephone Calls for Nurse	Cases referred to Physicians	Cases referred to Milk Depot	Cases referred to Social Welfare Commission	Cases referred to M.S.N.M.	Cases referred to Fresh Air Camp	Ice supplied	Treatments given	Pre-natal advice given
					Natural	Artificial										
January	315	3,643	8	317	303	14	325	224	25	29	10	6	...	...	234	48
February	290½	3,681	10	306	263	35	341	218	13	32	3	3	...	...	185	39
March	302	4,403	21	306	288	18	590	298	43	36	4	4	...	...	279	74
April	307	4,017	15	288	277	10	334	194	13	18	1	1	...	.....	247	86
May	294	4,494	11	324	283	41	205	122	14	27	5	3	...	.....	126	79
June	274½	4,101	8	270	247	23	219	175	11	17	3	...	...	4	135	68
July	227½	3,085	8	278	275	3	252	172	18	24	1	1	10	10	159	53
August	278	3,842	14	319	280	30	363	173	15	8	...	12	3	...	150	50
September	330	4,096	9	368	295	23	309	144	21	30	...	...	...	...	116	52
October	286	3,809	10	337	306	41	204	182	32	19	...	4	...	...	117	50
November	334	4,186	10	271	261	10	325	236	38	27	4	...	...	...	149	13
December	337½	3,433	12	222	188	45	327	196	21	16	4	6	...	...	154	55
Totals	3,578	46,790	136	3,606	3,266	295	3,794	2,334	264	283	35	32	13	14	2,051	667

STATISTICIAN'S REPORT

A. J. Douglas, Esq., M.D.,
Medical Health Officer.

Dear Sir:

I have the honor to submit herewith the report on Vital Statistics for the year 1922.

Copies of the birth and death registrations have been furnished the Department by the Registrar, Mr. C. J. Brown, as in previous years.

Respectfully submitted,

A. G. LAWRENCE,
Secretary.

Summary of Statistics

	1922	1921
Area of City—Land, 14,865 acres; water, 622 acres; total, 15,287 acres (23.9 square miles).		
Population (City Assessor's figures)	199,129	196,947
Persons per acre of land	13.40	13.25
Natural increase, excess of births over deaths	3,828	4,308
Rate per 1,000 population	19.22	21.87
Stillbirths	252	238
Rate per 1,000 live births	44.8	39.5
Births, excluding stillbirths	5,629	6,029
Rate per 1,000 population	28.27	30.61
Deaths, excluding stillbirths	1,801	1,721
Rate per 1,000 population	9.04	8.74
Deaths of infants under 1 year	500	471
Infantile mortality rate per 1,000 living births	88.8	78.1
Marriages	2,525	2,816
Rate per 1,000 population	12.68	14.30

GROSS TYPHOID FEVER DEATH RATES PER 100,000 POPULATION

1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
117.5	118.4	95.0	84.6	248.3	222.6	146.5	51.0	40.6	38.4	31.6	17.1	10.8	9.7	7.9	3.5	9.5	8.2	7.6	10.3	5.7	5.1	1.5
Corrected Rate for City											7.9	5.4	4.3	3.9	2.0	7.5	6.0	6.5	7.4	.0	.0	.0

CRUDE DEATH RATES PER 100,000 POPULATION

Year	Population	Tuberculosis of lungs (28)	Tuberculosis, other forms (29-35)	Cancer, all forms (39-45)	Simple meningitis (61)	Cerebral haemorrhage (64)	Organic heart diseases (78-79)	Diseases of the arteries, atheroma, aneurysm, etc. (81)	Acute and chronic bronchitis (89-90)	Pneumonia, all forms (91-92)	Appendicitis and typhlitis (108)	Hernia, intestinal obstruction (109)	Acute and chronic nephritis (119-120)	Puerperal deaths (131-141)	External causes (155-186)
1922	199,129	52.7	11.0	93.4	6.0	45.2	76.3	15.0	5.0	87.4	19.1	9.5	29.1	12.5	40.7
1921	196,947	50.8	26.4	87.3	8.1	32.0	83.3	15.7	4.6	84.8	14.2	4.6	18.3	10.7	46.7
1920	192,571	71.7	20.8	79.4	13.0	45.7	62.3	11.9	13.5	132.9	14.0	9.9	25.3	28.0	47.3
1919	183,378	72.0	24.5	73.1	10.9	30.5	64.9	9.8	18.0	105.2	17.4	13.6	33.3	15.3	57.2
1918	183,595	86.6	26.7	80.6	7.6	32.1	71.3	9.3	10.9	117.6	19.1	10.9	38.7	19.1	49.0
1917	182,848	74.4	24.1	62.4	14.2	24.6	65.6	19.7	13.7	114.8	14.2	4.9	31.2	19.7	41.0
1916	200,090	79.5	24.4	63.5	20.5	25.0	66.5	17.5	21.0	129.4	12.5	9.0	29.0	20.5	41.5
1915	201,981	79.2	16.8	48.5	17.3	20.8	54.9	15.3	21.8	91.1	13.4	11.4	28.2	12.9	52.9
1914	203,255	72.8	19.7	44.3	12.8	19.2	48.7	10.3	22.1	93.0	6.4	6.4	28.0	26.1	60.5
1913	184 730	71.4	26.0	51.4	21.6	21.6	64.4	11.9	13.0	109.9	10.3	8.7	35.7	21.1	68.2
1912	166,553	64.8	29.4	49.2	22.8	30.6	72.1	4.8	21.0	168.1	8.4	6.6	39.0	21.0	74.5
1911	151,958	71.0	27.7	46.7	18.4	19.1	55.9	4.6	13.8	138.2	9.2	9.9	36.8	13.8	62.5

ACUTE COMMUNICABLE DISEASES

Cases and Deaths; Mortality per 100 Cases; Case and Death Rates per 100,000 Population

Year	Population	MEASLES					SCARLET FEVER					DIPHTHERIA				
		Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate
1922	199,129	763	3	.4	383.2	1.5	884	11	1.2	444.0	5.5	1,395	45	3.2	700.5	22.6
1921	196,947	157	.....	.....	79.7	.....	1,171	28	2.4	594.6	14.2	1,084	48	4.5	550.4	24.4
1920	192,571	3,736	33	.9	1940.1	17.1	2,697	76	2.8	1400.5	39.5	1,165	84	7.2	605.0	43.6
1919	183,378	91	2	2.2	49.6	1.1	1,148	22	1.9	626.0	12.0	907	46	5.1	494.6	25.1
1918	183,595	1,685	9	.5	917.7	4.9	227	10	4.4	123.6	5.4	1,077	48	4.4	586.6	26.1
1917	182,848	1,115	19	1.7	609.8	10.4	254	5	2.0	138.9	2.7	1,467	68	4.6	802.3	37.2
1916	200,090	3,051	37	1.2	1524.8	18.5	386	17	4.4	192.9	8.5	1,281	50	3.9	640.2	25.0
1915	201,981	2,164	25	1.2	1071.4	12.4	267	2	.7	132.2	1.0	463	44	9.5	229.2	21.8
1914	203,255	2,360	22	.9	1161.1	10.8	600	35	5.8	295.2	17.2	532	52	9.8	261.7	25.6
1913	184,730	361	15	4.1	195.4	8.1	1,288	45	3.5	697.2	24.4	281	34	12.1	152.1	18.4
1912	166,553	2,210	33	1.5	1326.9	19.8	572	59	10.3	343.3	35.4	347	41	11.8	208.3	24.6
1911	151,958	1,051	14	1.3	691.6	9.2	1,030	124	12.0	677.8	81.6	583	79	13.5	383.7	52.0
1910	132,720	1,059	14	1.3	797.9	10.5	907	93	10.3	683.4	70.1	270	23	8.5	203.4	17.3
1909	122,390	719	8	1.1	587.5	6.5	233	8	3.4	190.4	6.5	118	13	11.0	96.4	10.6

Year	Population	WHOOPING COUGH					MEASLES, SCARLET FEVER, DIPHTHERIA AND WHOOPING COUGH					TYPHOID FEVER				
		Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate	Cases	Deaths	Mortality per 100 cases	Case Rate	Death Rate
1922	199,129	476	12	2.5	239.0	6.0	3,518	71	2.0	1766.7	35.6	40	3	7.5	20.1	1.5
1921	196,947	124	7	5.6	63.0	3.5	2,536	83	3.3	1287.9	42.1	49	10	20.4	24.9	5.1
1920	192,571	400	24	5.4	228.5	12.5	8,038	217	2.7	4174.2	112.7	56	31	19.6	29.6	5.7
1919	183,378	539	19	3.5	293.9	10.4	2,685	89	3.31	1464.2	48.5	150	19	12.7	76.3	10.3
1918	183,595	582	16	2.7	317.0	8.7	3,571	83	2.32	1945.0	45.2	140	14	10.0	76.2	7.6
1917	182,848	329	19	5.8	180.0	10.4	3,165	111	3.51	1730.9	60.7	136	15	11.0	74.4	8.2
1916	200,090	602	27	4.5	300.8	13.5	5,320	131	2.46	2658.8	65.5	123	19	15.4	61.5	9.5
1915	201,981	115	13	11.3	56.9	6.4	3,009	84	2.79	1489.7	41.6	115	7	6.1	56.9	3.5
1914	203,255	109	22	20.2	53.6	10.8	3,601	131	3.64	1771.6	64.4	137	16	11.7	67.4	7.9
1913	184,730	57	19	33.3	30.9	10.3	1,987	113	5.69	1075.7	61.2	232	18	7.7	125.6	9.7
1912	166,553	70	23	32.8	42.0	13.8	3,199	156	4.88	1920.7	93.6	339	18	5.3	203.5	10.8
1911	151,958	50	8	16.0	32.9	5.3	2,714	225	8.29	1786.0	148.1	194	26	13.4	127.7	17.1
1910	132,720	28	13	46.4	21.1	9.8	2,264	143	6.31	1705.8	107.7	355	42	11.8	267.5	31.6
1909	122,390	48	14	29.2	39.2	11.4	1,118	43	3.8	913.5	35.1	326	47	14.4	266.4	38.4

1922 Month	STILLBIRTHS				LIVE BIRTHS				DEATHS			
	Male	Female	1922 Totals	1921 Totals	Male	Female	1922 Totals	1921 Totals	Male	Female	1922 Totals	1921 Totals
January	12	15	27	22	249	254	503	511	98	89	187	166
February	13	12	25	15	216	215	431	463	82	70	152	180
March	15	17	32	20	262	232	494	532	102	96	198	147
April	9	6	15	27	210	231	441	506	80	66	146	163
May	15	10	25	19	276	240	516	537	68	68	136	165
June	3	9	12	20	221	247	468	532	69	74	143	122
July	7	8	15	19	266	264	530	502	76	61	137	105
August	7	10	17	18	259	237	496	564	77	71	148	132
September	14	9	23	17	237	231	468	475	71	47	118	112
October	9	9	18	22	231	212	443	491	77	66	143	138
November	11	13	24	22	232	196	428	434	80	60	140	139
December	14	5	19	17	201	210	411	482	83	70	153	152
	129	123	252	238	2,860	2,769	5,629	6,029	963	838	1,801	1,721

Year	Population	Total Stillbirths	Rate per 1M Live Births	Total Live Births	Rate per 1M Population	Total Deaths	Rate per 1M Popu'ation
1922	199,129	252	44.8	5,629	28.27	1,801	9.04
1921	196,947	238	39.5	6,029	30.61	1,721	8.74
1920	192,571	251	40.6	6,174	32.06	2,270	11.79
1919	183,378	206	39.2	5,254	28.65	2,108	11.49
1918	183,595	245	43.6	5,621	30.61	2,706	14.74
1917	182,848	192	35.2	5,446	29.79	1,728	9.45
1916	200,090	254	42.5	5,980	29.88	2,072	10.35
1915	201,981	225	38.6	5,823	28.82	1,763	8.73
1914	203,255	257	44.4	5,789	28.48	1,955	9.62
1913	184,730	240	43.0	5,577	30.2	2,204	11.9

Ratio of Males to 100 Females

	1922	1921	1920	1919	1918	1917	1916
Stillbirths	105	138	153	125	145	116	105
Live Births	103	107	106	106	107	108	106
Deaths	115	110	115	113	117	107	124
Twin Births	74	89	88	77	70	64	68
Triple Births	1					1	1

Attendant at Birth (Excluding Stillbirths)

	1922		1921		1920	
Physicians	5,093	90.5%	5,558	88.1%	5,716	89.0%
Midwives and no attendant	556	9.5%	695	11.0%	699	11.0%
Unknown			14		10	

Illegitimacy

	1922	1921	1920	1919	1918	1917	1916
Illegitimate births	299	317	262	270	306	267	290
Per cent. of total births	5.3	5.0	4.1	4.9	5.2	4.7	4.6

Stillbirths According to Nationality of Mother

Rates per 1,000 live births

	1922	1921	1920	1919	1918	1917	1916
Canadian	37	48	45	34	38	27	43
British	42	33	44	41	52	31	40
Southern and Central European	51	34	32	36	39	41	42

Nativity of Mothers of Infants Born, 1922

(Excluding Stillbirths)

Canada	1,756	Iceland	34
England and Wales	1,236	Italy	33
Ireland	197	Norway	14
Scotland	596	Roumania	34
Australia	6	Russia and Poland	708
India	3	Spain	1
British West Indies	6	Sweden	38
Malta	1	Switzerland	4
South Africa	4	Sicily	1
Austria and Hungary	580	China	10
Belgium	13	Japan	1
Denmark	4	Syria	14
Finland	2	United States	257
France	20	Ocean	2
Germany	26	Unknown	11
Greece	3		
Holland	14	Total	5,629

Summary

	Births		Percentage	
	1922	1921	1922	1921
Canada	1,757	1,902	31.2	30.1
British Isles	2,029	2,328	36.0	37.3
Scandinavia	89	161	1.6	2.6
Southern and Central Europe	1,439	1,535	25.6	24.6
United States	257	302	4.6	4.7
Other Countries	58	31	1.0	.5
Unknown		6		.2
Totals	5,629	6,267	100.0	100.0

DEATHS BY MONTH, SEX AND AGE PERIOD, 1922

Month	Under 1		1 to 2		3 to 4		5 to 9		10 to 19		20 to 29		30 to 39		40 to 49		50 to 59		60 to 69		70 to 79		80 to 89		90 to 99		100 to 109		Totals	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	26	22	2	6	1	1	7	4	3	2	6	2	6	12	6	13	12	4	10	7	14	12	5	2	....	2	.....	...	98	89
February	20	11	3	4	....	5	6	1	4	2	9	6	4	7	11	6	6	8	7	11	6	7	6	2	....	..	.....	...	82	70
March	40	30	6	4	1	1	4	....	3	.....	5	11	8	3	9	16	8	9	7	11	8	8	2	3	1	..	.....	.....	102	96
April	26	18	2	1	2	....	1	1	3	1	6	8	7	11	8	5	10	7	3	6	7	5	4	3	1	.	.....	.....	80	66
May	18	19	2	3	1	....	2	1	2	1	3	5	4	7	1	8	8	6	11	9	8	6	3	2	2	..	.....	1	68	68
June	17	20	3	6	2	1	7	2	2	8	7	6	3	4	8	4	3	3	8	8	7	8	1	3	1	1	.....	.....	69	74
July	19	10	6	6	3	....	...	2	3	4	2	1	3	7	12	3	8	10	8	7	10	7	2	3	....	1	.....	.....	76	61
August	26	16	5	4	2	2	1	1	3	4	4	6	5	8	9	10	10	8	5	7	4	3	3	1	....	1	.....	.....	77	71
September	25	15	6	1	3	1	....	4	2	2	5	1	3	2	9	5	2	3	8	7	6	4	2	2	.....	.....	.....	.....	71	47
October	16	17	7	1	2	2	4	6	6	1	4	6	10	4	6	5	10	9	7	6	4	6	1	2	....	1	.....	.....	77	66
November	28	20	3	3	....	1	1	2	4	3	2	6	7	....	11	3	7	8	8	7	6	4	3	3	.....	.....	.....	.....	80	60
December	22	19	2	5	4	....	1	2	2	4	2	6	2	4	5	11	15	7	16	4	9	7	3	1	.....	.....	.....	.....	83	70
Totals	283	217	47	44	21	14	34	26	37	32	55	64	62	69	88	89	99	82	98	90	89	77	35	27	5	6	.....	1	963	838
Combined Totals 1922	500		91		35		60		69		119		131		187		181		188		166		62		11		1		1,801	
Totals 1921	471		86		41		71		76		114		142		156		173		188		150		47		3		3		1,721	
Percentages of Totals 1922	27.76		5.05		1.94		3.33		3.83		6.61		7.27		10.38		10.05		10.44		9.21		3.44		.60		.05		100.00	
Totals 1921	27.37		5.00		2.38		4.13		4.42		6.62		8.25		9.07		10.05		10.92		8.72		2.73		.17		.17		100.00	

Nativity of Decedents, 1922

Winnipeg	625	Denmark	4
Manitoba (rest of)	126	Finland	1
Alberta	6	France	6
New Brunswick	7	Germany	7
Nova Scotia	11	Holland	2
Newfoundland	3	Iceland	25
Ontario	245	Italy	3
Prince Edward Island	9	Norway	5
Quebec	28	Roumania	18
Saskatchewan	12	Russia	94
Canada	6	Sweden	12
England and Wales	224	Switzerland	1
Ireland	54	China	3
Scotland	115	South America	1
Australia	2	United States	49
South Africa	3	Unknown	11
Austria	82		
Belgium	1	Total	1,801

Summary

	Deaths		Per cent. of total	
	1922	1921	1922	1921
Canada	1,078	1,038	59.9	60.3
British Isles	393	375	21.8	21.8
Europe (excluding British Isles)	261	239	14.5	13.9
United States	49	44	2.7	2.6
Asia	3	12	.2	.7
Other Countries	6	2	.3	.1
Unknown	11	11	.6	.6
Totals	1,801	1,721	100.0	100.0

Social Status of Decedents

	Male	Female	Total	Per cent. of total
Single, under 16 years	408	313	721	40.03
Single, 16 years and over	124	78	202	11.22
Total: Single	532	391	923	51.25
Married	348	313	661	36.70
Widowed	78	134	212	11.77
Divorced	1		1	.06
Unknown	4		4	.22
Totals	963	838	1,801	100.00

Stillbirths and Deaths in Hospitals, 1922

	Deaths	Stillbirths	
General Hospital	438	67	Surgical and Medical
Children's Hospital	114	....	As above in children
King Edward Memorial	55	....	Tuberculosis
King George Hospital	62	.....	Communicable Diseases
Victoria Hospital	28	9	Surgical and Medical
Grace Hospital	50	39	Maternity
Misericordia Hospital	84	20	Maternity and General
Dr. Gerzabek's Hospital	3	....	Private Hospital
Lill's Nursing Home	6	3	Private Hospital
Ward's Nursing Home	5	1	Private Hospital
Dr. Galloway's Hospital	11	.....	Private Hospital
Healthwin Maternity Home	3	.....	Maternity
	859	139	

Infant Mortality Statistics

For further particulars regarding infantile mortality, see report of the Manager, Bureau of Child Hygiene, pages 102 to 109.

Comparative Infant Mortality Table

Year	No. Births	No. Deaths	Rate per 1,000 births
1922	5,629	500	88.8
1921	6,029	471	78.1
1920	6,174	625	101.2
1919	5,254	562	106.9
1918	5,621	516	91.8
1917	5,446	545	100.1
1916	5,980	700	117.0
1915	5,823	619	106.3
1914	5,789	729	125.9
1913	5,577	947	169.8
1912	4,870	1,006	206.6
1911	4,469	762	170.5
1910	3,772	628	166.5

Infant Mortality According to Nationality of Mothers

(Excluding Stillbirths)

Nationality	1922 Live births	1922 Deaths	Rates per 1,000 live births 1922	1921	1920	1919	1918
Canadian	1,757	181	103	68	89	103	77
English and Welsh	1,236	80	65	83	99	101	76
Irish	197	12	61	75	82	103	88
Scotch	596	51	85	72	78	82	64
American (U.S.A.)	257	20	78	52	53	63	67
Scandinavian	89	12	135	102	98	72	75
Southern and Central European	1,439	136	94	90	142	132	115

Infantile Mortality—Cause of Death
Number of Deaths

Diseases	1922	1921	1920
Acute communicable diseases	24	5	45
Other general diseases	19	24	22
Of nervous system and of organs of special sense	27	23	29
Of respiratory system	75	88	115
Of digestive system	118	87	144
Malformations and diseases of early infancy	222	232	246
All other diseases	15	12	24
Totals	500	471	625

Rates per 1,000 Births

Diseases	1922	1921	1920
Acute communicable diseases	4.3	.8	7.3
Other general diseases	3.4	4.0	3.6
Of nervous system and of organs of special sense	4.8	3.8	4.7
Of respiratory system	13.3	14.6	18.6
Of digestive system	20.9	14.4	23.3
Malformation and diseases of early infancy	39.4	38.5	39.8
All other diseases	2.7	2.0	3.9
Totals	88.8	78.1	101.2

Per Cent. of Total

Diseases	1922	1921	1920
Acute communicable diseases	4.8	1.1	7.2
Other general diseases	3.8	5.1	3.5
Of nervous system and of organs of special sense	5.4	4.9	4.7
Of respiratory system	15.0	18.7	18.4
Of digestive system	23.6	18.5	23.0
Malformations and diseases of early infancy	44.4	49.2	39.4
All other diseases	3.0	2.5	3.8
Totals	100.0	100.0	100.0

Classification of Ages of Decedents under One Year of Age

1922

	No. of Deaths	Rate per 1,000 births	Per cent. of total
Minutes to 1 week	181	32.2	36.2
Over 1 to 2 weeks	27	4.8	5.4
Over 2 to 3 weeks	21	3.7	4.2
Over 3 weeks to 1 month	17	3.0	3.4
Minutes to 1 month	246	43.7	49.2
Over 1 to 2 months	28	5.0	5.6
Over 2 to 3 months	35	6.2	7.0
Minutes to 3 months	309	54.9	61.8
Over 3 to 6 months	81	14.4	16.2
Over 6 to 9 months	67	11.9	13.4
Over 9 and under 12 months	43	7.6	8.6
	500	88.8	100.0

For comparison with the above, the final figures for the years 1921 and 1920 are given below:

1921

	No. of Deaths	Rate per 1,000 births	Per cent. of total
Minutes to 3 months	343	56.8	72.8
Over 3 to 6 months	63	10.4	13.4
Over 6 to 9 months	32	5.3	6.8
Over 9 and under 12 months	33	5.6	7.0
Totals	471	78.1	100.0

1920

	No. of Deaths	Rate per 1,000 births	Per cent. of total
Minutes to 3 months	407	65.9	65.1
Over 3 to 6 months	96	15.6	15.4
Over 6 to 9 months	58	9.4	9.3
Over 9 and under 12 months	64	10.3	10.2
Totals	625	101.2	100.0

1922 CAUSE OF DEATH (By Month)		January	February	March	April	May	June	July	August	September	October	November	December	Totals
	Stillbirths	27	25	32	15	25	12	15	17	23	18	24	19	252
	1—General Diseases													
1	Typhoid fever				1				1	1				3
6	Measles				1		1	1						3
7	Scarlet fever	1	1	1	1		3	1			1	1	1	11
8	Whooping cough			1	1	1	1		3		1	1	3	12
9	Diphtheria and croup	6	7	3	3	1	2	2	3	5	7	3	3	45
10	Influenza	4	3	14	6	7	1	2	1		1	2	1	42
	Totals, Nos. 1 to 10	11	11	19	13	9	8	6	8	6	10	7	8	116
14	Dysentery								1		1	2		4
18	Erysipelas	1	1										1	3
20	Purulent infection and septichæmia	1	2	3	1	1	2	1	2	2		3	2	20
24	Tetanus						1							1
28	Tuberculosis of the lungs	9	8	4	14	11	11	7	13	2	7	7	12	105
29	Acute miliary tuberculosis								1				1	2
30	Tuberculous meningitis	2	2	2	1	1	2	1				1		12
31	Abdominal tuberculosis		1		2									3
32	Pott's disease										1	2		3
33	White swellings			1										1
34	Tuberculosis of other organs									1				1
	Totals, Nos. 29 to 35	2	3	3	3	1	2	1	1	1	1	3	1	22
36	Rickets						1						1	2
37	Syphilis	2	1	2		2	1	1			1		1	11
38	Soft chancre, gonococcus infection	1												1
39	Cancer and other malignant tumors of the buccal cavity	1	1	1		1	1		1					6
40	Cancer and other malignant tumors of the stomach, liver	9	5	7	5	4	5	7	4	6	9	7	4	72
41	Cancer and other m. t. of the peritoneum, intestines, rectum	2	1	1	3	2	3	4	3	3	1	3	1	27
42	Cancer and other m. t. of the female genital organs	8	1	2	1	2	3	2	2	2	3		6	32
43	Cancer and other malignant tumors of the breast	2	1	3		2	1			1	1		2	13

1922 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
45 Cancer and other malignant tumors of other organs	2	2	3	4	2	3	2	6	....	4	5	3	36
Totals, Nos. 39 to 45a	24	11	17	13	13	16	15	16	12	18	15	16	186
46 Other tumors (tumors of the female genital organs exc.)	....	....	....	....	....	....	....	1	1	....	1	....	3
47 Acute articular rheumatism	....	....	....	....	....	....	1	1	....	....	....	....	2
50 Diabetes	1	....	3	2	2	2	1	1	3	2	3	3	23
51 Exophthalmic goitre	....	....	....	....	....	....	1	1	....	....	2	1	5
52 Addison's disease	1	....	....	....	....	....	....	....	....	....	....	....	1
53 Leuchæmia	1	1	....	....	....	....	....	....	....	....	....	1	3
54 Anæmia, chlorosis	....	....	1	1	2	2	1	5	....	....	....	4	16
55 Other general diseases	....	....	....	2	1	....	....	....	....	....	2	....	5
56 Alcoholism (acute or chronic)	....	....	1	....	....	....	....	....	....	....	....	1	2
58 Other chronic occupational poisonings	....	....	....	....	....	....	1	....	....	....	1	....	2
Totals, Nos. 1 to 59	54	38	53	49	42	46	36	50	27	40	46	52	533
II.—Diseases of the Nervous System and of the Organs of Special Sense													
60 Encephalitis	1	1	1	....	....	2	....	....	1	1	2	....	9
60a Encephalitis lethargica	....	1	....	1	....	2	....	....	1	....	....	....	5
61 Simple meningitis	1	4	1	1	1	....	1	1	....	....	2	1	13
63 Other diseases of the spinal cord	....	....	....	....	....	2	....	1	....	....	....	....	3
63a Acute anterior poliomyelitis	....	....	....	....	....	....	1	....	....	....	....	....	1
64 Cerebral hæmorrhage apoplexy	13	8	9	9	10	7	5	5	7	6	4	7	90
66 Paralysis without specified cause	....	....	1	....	....	1	1	....	....	....	....	....	3
67 General paralysis of the insane	....	....	....	....	....	....	....	....	....	....	1	1	2
68 Other forms of mental alienation	....	....	....	....	....	....	....	....	....	1	....	....	1
69 Epilepsy	1	....	....	1	....	1	1	....	....	....	2	....	6
71 Convulsions of infants	1	....	....	....	1	....	1	....	1	....	....	1	5
73 Neuralgia and neuritis	1	....	1	....	....	....	....	....	....	....	....	1	3
74 Other diseases of the nervous system	....	2	2	....	....	1	1	5	....	2	....	....	13

1922 CAUSE OF DEATH (By Month)		January	February	March	April	May	June	July	August	September	October	November	December	Totals
76	Diseases of the ears					1			1		1		2	5
	Totals, Nos. 60 to 76	18	16	15	12	13	16	11	13	10	11	11	13	159
	III.—Diseases of the Circulatory System													
77	Pericarditis				1						1			2
78	Acute endocarditis	3	3	5	2	1	2	1	4		2	4	6	33
79	Organic diseases of the heart	12	11	15	5	9	10	10	7	10	8	10	12	119
80	Angina pectoris	4	5	2		2		4			1	1	1	20
81	Diseases of the arteries, atheroma, aneurysm, etc.	5	4	5	3	3	2	1	1		4	1	1	30
82	Embolism and thrombosis	3	1		1		1	3		2	2		2	15
83	Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.)											1		1
84	Diseases of the lymphatic system (lymphangitis, etc.)		1			1	1							3
85	Hæmorrhage; other diseases of the circulatory system	1			1		1				1			4
	Totals, Nos. 77 to 85	28	25	27	13	16	17	19	12	12	19	17	22	227
	IV.—Diseases of the Respiratory System													
87	Diseases of the larynx	1		1										2
88	Diseases of the thyroid body		1		1									2
89	Acute bronchitis	1		1	2				1					5
90	Chronic bronchitis			1	1	1			1		1			5
91	Broncho-pneumonia	7	10	16	12	10	5	8	5	3	8	5	16	105
92	Pneumonia	11	7	19	7	5	1	5	3	4	3	3	1	69
93	Pleurisy				1				1	1	1			4
94	Pulmonary congestion, pulmonary apoplexy	1	2			1					1			5
96	Asthma			1	1								1	3
98	Other diseases of the respiratory system (tuberculosis ex.)								1		2	2		5
	Totals, Nos. 86 to 98	21	20	39	25	17	6	13	12	8	16	10	18	205

1922 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
V.—Diseases of the Digestive System													
100 Diseases of the pharynx	1									1		2	4
102 Ulcer of the stomach	1		1		1		2						5
103 Other diseases of the stomach (cancer ex.) (2 years and over)			1	1				1	1			1	5
103a Other diseases of the stomach (cancer ex.) (under 2 yrs.)	1			1	2	1	1		2	1	2	1	12
104 Diarrhœa and enteritis (under 2 years)	13	7	7	6	7	3	9	22	20	10	6	7	117
105 Diarrhœa and enteritis (2 years and over)		3					2	1	3	1		2	12
108 Appendicitis and typhlitis	4	1	4	1	1	5	4	5	6	3	1	3	38
109 Hernia, intestinal obstruction	4	2	1	1		2		3	1	2		3	19
110 Other diseases of the intestines		1					1	1			1	1	5
112 Hydatid tumor of the liver						1							1
113 Cirrhosis of the liver	1	1				1		1		2		1	7
114 Biliary calculi				1	1							2	4
115 Other diseases of the liver	2	3	2	1		1	1				1	1	12
117 Simple peritonitis (non-puerperal)					1								1
118 Other diseases of the digestive system (cancer and tuberculosis ex.)				1						1			2
Totals, 99 to 118	27	18	16	13	13	14	20	34	33	21	11	24	244
VI.—Non-Venereal Diseases of the Genito-Urinary System and Annexa													
119 Acute nephritis	1	1							1				3
120 Bright's disease	9	1	5	3	5	3	6	6	3	8	5	1	55
122 Other diseases of the kidneys and annexa		1			1		1		2	1			6
126 Diseases of the prostate	1	1					2			1			5

1922 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
129 Uterine tumor (non-cancerous)		1	1		1								3
130 Other diseases of the uterus	1					1							2
131 Cysts and other tumors of the ovary				1				1					2
132 Salpingitis and other diseases of the female genital organs		1					2			1			4
Totals, 119 to 133	12	6	6	4	7	4	11	7	6	11	5	1	80
VII.—The Puerperal State													
134 Accidents of pregnancy				1				1	1			1	4
136 Other accidents of labor	1	2			1								4
137 Puerperal septichæmia	1	1		2	2					1			7
138 Puerperal albuminuria and convulsions		3	1			1			1				6
139 Puerperal phlegmasia alba dolens, embolus, sudden death		1					2				1		4
Totals, 134 to 141	2	7	1	3	3	1	2	1	2	1	1	1	25
VIII.—Diseases of the Skin and of the Cellular Tissue													
144 Acute abscess					1						1	2	4
145 Other diseases of the skin and annexa			1										1
Totals, 142 to 145			1		1						1	2	5
IX.—Diseases of the Bones and of the Organs of Locomotion													
146 Diseases of the bones (tuber. ex.)		1	1		1	1	1						5

1922 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
147 Diseases of the joints (tuber. and rheumatism ex.)		1											1
Totals, 146 to 149		2	1		1	1	1						6
X.—Malformations													
150 Congenital malformations (stillbirths not included)	5		6	2	1	3	5	2	2	3	5	1	35
XI.—Early Infancy													
151 Congenital debility, icterus and sclerema	11	6	17	11	7	18	9	7	11	5	15	7	124
152 Other causes peculiar to early infancy	5	5	8	5	5	5	3	5	3	4	8	9	65
153 Lack of care						1							1
Totals 151 to 153	16	11	25	16	12	24	12	12	14	9	23	16	190
XII.—Old Age													
154 Senility			1	2	1	1							5
XIII.—External Causes													
155 Suicide by poison					1					1			2
157 Suicide by hanging or strangulation		1		1	1				1		1		5
158 Suicide by drowning			1	1	1	1	1				1		6
159 Suicide by firearms	1	1			1								3
160 Suicide by cutting or piercing instruments		1											1
161 Suicide by jump from high places			1						1				2
165 Other acute poisonings										1			1
166 Conflagration		1							1				2
167 Burns (conflagration excepted)		2	1				3			2	1		9
168 Absorption of deleterious gases (conflagration ex.)				1									1
169 Accidental drowning						2							2

1922 CAUSE OF DEATH (By Month)	January	February	March	April	May	June	July	August	September	October	November	December	Totals
170 Traumatism by fire-arms				1		1				1			3
172 Traumatism by fall	1	1	1	1		2	1			1	1	1	10
174 Traumatism by machines			1										1
175a Traumatism by automobiles		1	1	1	3	1		2	1	3	2		15
175b Traumatism by railroads					1	1					2	1	5
175c Traumatism by other crushing (landslides, etc.)	1	1		1							1		4
176 Injuries by animals					1			1					2
179 Effects of heat							1						1
181 Electricity (lightning excepted)						2							2
182 Homicide by fire-arms										1			1
183 Homicide by cutting or piercing instruments							1						1
184 Homicide by other means												1	1
186 Other external violence	1												1
Totals, 155 to 186	4	9	6	7	9	10	7	3	4	10	9	3	81
XIV.—Ill-defined Diseases													
189 Cause of death not specified or ill-defined			1					2		2	1		6
Totals, 187 to 189			1					2		2	1		6
Grand Totals	187	152	198	146	136	143	137	148	118	143	140	153	1801

	1922 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS													
		Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	Totals
	Stillbirths	129	123													252
	I.—General Diseases															
1	Typhoid fever	2	1						1	1	1					3
6	Measles	5	6	1	3	3	2	1	1							11
7	Scarlet fever	3	9	7	4	1										12
8	Whooping cough	22	23	5	7	11	18	4								45
9	Diphtheria and croup	16	26	9	3	1	2	1	5	3	4	4	3	3	1	42
10	Influenza	51	65	24	18	16	22	6	7	7	5	4	3	3	1	116
	Totals, Nos. 1 to 10															
14	Dysentry	1	3	2									1	1		4
18	Erysipelas		3	1				1				1				3
20	Purulent infection and septichæmia	14	6	6	1			3	2		3	4	1			20
24	Tetanus	1										1				1
28	Tuberculosis of the lungs	54	51		2		1	3	35	28	14	13	5	1	1	105
29	Acute miliary tuberculosis	1	1					2								2
30	Tuberculous meningitis	10	2	3	3	1	3		2							12
31	Abdominal tuberculosis		3					1	1			1				3
32	Pott's disease	2	1					2				1				3
33	White swellings		1								1					1
34	Tuberculosis of other organs	1	1						1							1
	Totals, Nos. 29 to 35	13	9	3	3	1	3	5	4		1	2				22

1922 CAUSE OF DEATH (By Sex and Age)		SEX		AGE IN YEARS												
		Male	Female	1 to 2	Under 1	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	Totals
36	Rickets	1	1	2												2
37	Syphilis	8	3	4	1					1	3	1	1			11
38	Soft chancre, gonococcus infection	1							1							1
39	Cancer and other malignant tumors of the buccal cavity	6									1	1	2	2		6
40	Cancer and other malignant tumors of the stomach, liver	40	32							4	13	19	21	12	3	72
41	Cancer and other m. t. of the peritoneum, intestines, rectum	17	10			1				1	6	5	8	4	2	27
42	Cancer and other m. t. of the female genital organs		32					1		7	11	7	5	1		32
43	Cancer and other malignant tumors of the breast		13							1	4	3	4		1	13
45	Cancer and other malignant tumors of other organs	26	10		1			1		2	8	8	9	6	1	36
	Totals, Nos. 39 to 45a	89	97		1	1		2		15	43	43	49	24	7	186
46	Other tumors (tumors of the female genital organs exc.)	1	2							1		1				3
47	Acute articular rheumatism	1	1					1				1				2
50	Diabetes	14	9				1	2	2	1	3	2	8	3	1	23
51	Exophthalmic goitre	2	3						2			1	1	1		5
52	Addison's disease		1								1					1
53	Leuchæmia	2	1							1	2					3
54	Anæmia, chlorosis	8	8							1	3	6	4	2		16
55	Other general diseases	2	3	1			1		1				2			5
56	Alcoholism (acute or chronic)	2								1	1					2
58	Other chronic occupational poisonings	1	1						1			1				2
	Totals, Nos. 1 to 59	266	267	43	26	18	28	25	55	56	79	81	75	37	10	533

II.—Diseases of the Nervous System and of the Organs of Special Sense																	
60	Encephalitis	5	4	3	....	....	1	....	1	2	....	2	....	....	....	....	....	9
60a	Encephalitis lethargica	3	2	1	1	....	....	1	2	....	....	....	....	....	....	....	....	5
61	Simple meningitis	5	8	8	3	1	....	....	1	....	....	....	....	....	....	....	....	13
63	Other diseases of the spinal cord	1	2	....	....	....	....	....	....	....	1	1	....	1	....	....	....	3
63a	Acute anterior poliomyelitis	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1
64	Cerebral hæmorrhage, apoplexy	39	51	9	....	....	....	....	1	2	13	10	24	25	6	....	....	90
66	Paralysis without specified cause	1	2	....	....	....	....	....	....	....	....	1	1	....	1	....	....	3
67	General paralysis of the insane	1	1	....	....	....	....	....	....	....	2	....	....	....	....	....	....	2
68	Other forms of mental alienation	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1
69	Epilepsy	2	4	....	....	....	....	2	1	1	2	....	....	....	....	....	....	6
71	Convulsions of infants	2	3	4	1	....	....	....	....	....	....	....	....	....	....	....	....	5
73	Neuralgia and neuritis	1	2	....	....	....	....	....	....	....	1	....	1	1	....	....	....	3
74	Other diseases of the nervous system	7	6	2	....	3	1	1	1	1	1	2	1	....	....	....	....	13
76	Diseases of the ears	3	2	....	1	....	....	2	....	....	2	....	....	....	....	....	....	5
	Totals, Nos. 60 to 76	72	87	27	6	4	2	7	7	6	22	17	27	27	7	....	....	159
III.—Diseases of the Circulatory System																		
77	Pericarditis	....	2	....	....	....	1	....	....	1	....	....	....	....	....	....	....	4
78	Acute endocarditis	17	16	....	....	....	....	7	4	4	11	7	....	....	....	....	....	33
79	Organic diseases of the heart	66	53	1	....	....	....	1	6	4	11	14	30	38	10	4	....	119
80	Angina pectoris	14	6	....	....	....	....	....	....	2	2	6	7	3	....	....	....	20
81	Diseases of the arteries, atheroma, aneurysm, etc.	16	14	....	....	....	....	....	1	....	4	7	5	7	5	1	....	30
82	Embolism and thrombosis	4	11	....	....	....	....	1	2	1	2	1	3	4	....	1	....	15
83	Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.)	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
84	Diseases of the lymphatic system (lymphangitis, etc.)	3	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....	5
85	Hæmorrhage; other diseases of the circulatory system	....	4	....	....	....	....	....	....	2	....	....	....	1	1	....	....	4
	Totals, Nos. 77 to 85	121	106	3	....	1	1	9	13	14	30	35	45	84	16	6	....	227

1922 CAUSE OF DEATH (By Sex and Age)		SEX		AGE IN YEARS															
		Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	Totals
IV.—Diseases of the Respiratory System																		
87	Diseases of the larynx		2		1		1											2
88	Diseases of the thyroid body		2						1					1				2
89	Acute bronchitis	2	3	4										1				5
90	Chronic bronchitis	4	1											4	1			5
91	Broncho-pneumonia	56	49	51	15	1	4	1	1		2	6	5	11	5	2	1	105
92	Pneumonia	44	25	18	6	1	7	1	5	4	3	8	8	7	1			69
93	Pleurisy	2	2	1					1	1	1							4
94	Pulmonary congestion, pulmonary apoplexy	3	2		2								1		2			5
96	Asthma	2	1			1						1	1					3
98	Other diseases of the respiratory system (tuberculosis excepted)	3	2	1				1	1			2						5
	Totals, Nos. 86 to 98	116	89	75	24	3	12	3	9	5	6	17	15	24	9	2	1	205
V.—Diseases of the Digestive System																		
100	Diseases of the pharynx	1	3	2	1		1											4
102	Ulcer of the stomach	3							1		2	1		1				5
103	Other diseases of the stomach (cancer excepted) (2 years and over)	3	2		1						1		1	1		1		5
103a	Other diseases of the stomach (cancer excepted) (under 2 years)	4	8	11	1													12
104	Diarrhœa and enteritis (under 2 years)	75	42	100	15		1						1					117
105	Diarrhœa and enteritis (2 years and over)	8	4		4					1		2	1		3	1		12
108	Appendicitis and typhlitis	24	14		2	1	7	12	7	3	3	2	1					38

109	Hernia, intestinal obstruction	8	11	3	....	....	1	....	2	3	3	3	1	2	1	....	....	19
110	Other diseases of the intestines	3	2	1	....	1	....	....	1	....	1	....	1	....	....	....	....	5
112	Hydatid tumor of the liver	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1
113	Cirrhosis of the liver	4	3	1	....	....	....	1	....	....	....	2	....	2	1	....	....	7
114	Biliary calculi	2	2	....	....	....	....	....	....	1	1	1	....	1	....	....	....	4
115	Other diseases of the liver	5	7	....	....	....	....	....	....	3	3	2	2	1	1	....	....	12
117	Simple peritonitis (non-puerperal)	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1
118	Other diseases of the digestive system (cancer and tuberculosis excepted)	....	2	....	....	....	....	....	....	....	2	....	....	....	....	....	....	2
	Totals, Nos. 99 to 118	143	101	118	24	2	10	13	11	11	17	14	8	8	6	2	....	244
	VI.—Non-Venereal Diseases of the Genito-Urinary System and Annexa																	
119	Acute nephritis	3	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	3
120	Bright's disease	31	24	1	....	....	1	1	4	5	11	8	12	5	6	1	....	55
122	Other diseases of the kidneys and annexa	3	3	3	1	....	....	....	....	1	....	1	....	....	....	....	....	6
126	Diseases of the prostate	5	....	....	....	....	....	....	....	....	....	1	1	2	1	....	....	5
129	Uterine tumor (non-cancerous)	....	3	....	....	....	....	....	....	....	2	1	....	....	....	....	....	3
130	Other diseases of the uterus	....	2	....	....	....	....	1	....	....	1	....	....	....	....	....	....	2
131	Cysts and other tumors of the ovary	....	2	....	....	....	....	....	2	....	....	....	....	....	....	....	....	2
132	Salpingitis and other diseases of the female genital organs	....	4	....	....	....	....	....	....	3	1	....	....	....	....	....	....	4
	Totals, Nos. 119 to 133	42	38	4	2	....	1	4	6	9	15	11	13	7	7	1	....	80
	VII.—The Puerperal State																	
134	Accidents of pregnancy	....	4	....	....	....	....	....	1	3	....	....	....	....	....	....	....	4
136	Other accidents of labor	....	4	....	....	....	....	....	1	3	....	....	....	....	....	....	....	4
137	Puerperal septichæmia	....	7	....	....	....	....	....	2	4	1	....	....	....	....	....	....	7

1922 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS														
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	Totals
138 Puerperal albuminuria and convulsions		6					1	1	3	1							16
139 Puerperal phlegmasia alba dolens, embolus, sudden death		4							2	2							4
Totals, Nos. 134 to 141		25					1	5	15	4							25
VIII.—Diseases of the Skin and of the Cellular Tissue																	
144 Acute abscess	2	2							1	1	2						4
145 Other diseases of the skin and annexa		1	1														1
Totals, Nos. 142 to 145	2	3	1						1	1	2						5
IX.—Diseases of the Bones and of the Organs of Locomotion																	
146 Diseases of the bones (tuberculosis excepted)	3	2	1				1		1		1		1				5
147 Diseases of the joints (tuberculosis and rheumatism excepted)		1								1							1
Totals, Nos. 146 to 149	3	3	1				1		1	1	1		1				6
X.—Malformations																	
150 Congenital malformations (stillbirths not inc.)	17	18	34	1													35

XI.—Early Infancy																		
151	Congenital debility, icterus and sclerema	76	48	124														124
152	Other causes peculiar to early infancy	36	29	64	1													65
153	Lack of care		1		1													1
	Totals, Nos. 151 to 153	112	78	188	2													190
XII.—Old Age																		
154	Senility	2	3										1		4			5
XIII.—External Causes																		
155	Suicide by poison		2					1			1							2
157	Suicide by hanging or strangulation	4	1						2	1	1		1					5
158	Suicide by drowning	5	1								2	2		2				6
159	Suicide by firearms	3							1	1			1					3
160	Suicide by cutting or piercing instruments	1									1							1
161	Suicide by jumping from high places	1	1							1	1							2
165	Other acute poisonings	1									1							1
166	Conflagration	2								1	1							2
167	Burns (conflagration excepted)	4	5		5	4												9
168	Absorption of deleterious gases (conflagration ex.)	1								1								1
169	Accidental drowning	2					1	1										2
170	Traumatism by firearms	3			1			1	1									3
172	Traumatism by fall	6	4						1	2	1			3	3			10
174	Traumatism by machines	1							1									1
175a	Traumatism by automobiles	11	4			3	3	3	1	1	1	1	1	1				15
175b	Traumatism by railroads	5							3	2								5
175c	Traumatism by other crushing (landslides, etc.)	4					1		1		1			1				4
176	Injuries by animals	2							1				1					2
179	Effects of heat	1		1														1
181	Electricity (lightning excepted)	2					1		1									2

1922 CAUSE OF DEATH (By Sex and Age)	SEX		AGE IN YEARS														
	Male	Female	Under 1	1 to 2	3 to 4	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	Totals
182 Homicide by firearms	1								1								1
183 Homicide by cutting or piercing instruments	1								1								1
184 Homicide by other means	1												1				1
186 Other external violence	1									1							1
Totals, Nos. 155 to 186	63	18	1	6	7	6	6	13	12	12	3	4	8	3			81
XIV.—Ill-defined Diseases																	
189 Cause of death not specified or ill-defined	4	2	5						1								6
Totals, Nos. 187 to 189	4	2	5						1								6
Grand Totals	963	838	500	91	35	60	69	119	131	187	181	188	166	62	11	1	1801